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Honey Column.

CITY MARKETS.

NEW YORK. — The market is well supplied with comb honey, especially of dark and amber. Demand is but fair for white grades, and dark is being neglected. We quote fancy white, 12@13; No. 1 white, 10@11; amber, 9@10; dark, 7@8. Extracted is in good demand, and stocks are light of all kinds. We quote white, 6½@7; amber, 6; dark, 5¾@6; southern, in bbls., 60@65 per gal. Beeswax dull at 26@27.
HILDRETH BROS. & SEGELKEN.
Dec. 20. New York.

PHILADELPHIA. — Honey has declined in price on account of bee-men shipping in their honey, and urging sale at any price. History repeats itself. Every year we urge producers marketing their crop in September, but, alas! We quote fancy comb, 14½@16; No. 1, 11@12; amber, 9; extracted white, 7; amber, 4@5½. We are producers of honey—do not handle on commission.
WM. A. SELSER,
Dec. 21. 10 Vine St., Philadelphia, Pa.

CLEVELAND.—We quote our honey market to-day as follows: Fancy white, 13@14; No. 1, 12@12½; light amber, 11; buckwheat, 9. Extracted, white, 7; light amber, 6.
A. B. WILLIAMS & CO.,
Dec. 20. 80-82 Broadway, Cleveland, Ohio.

ALBANY. — Honey market steady. Fancy white comb, 12@13; No. 1, 11@12; No. 2, 9@10; mixed and buckwheat, 8@9; extracted white, 6½@7; amber, 6@6½; dark, 5½@6. Extracted continues in good demand with light supply.
MACDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
Dec. 22 Albany, N. Y.

COLUMBUS.—Supplies of honey are larger than the demand requires, consequently prices are nominal, with shading of figures necessary to make sales. Fancy white, 12½; No. 1, 10@11; amber, 8@9.
THE COLUMBUS COMMISSION & STORAGE CO.,
Dec. 19. 409-413 N. High St., Columbus, O.

DETROIT. — Fancy white, 13; No. 1, 11½@12; fancy dark and amber, 9@11; extracted white, 6@7; dark, 5@5½; beeswax, 25@26.
M. H. HUNT,
Dec. 23. Bell Branch, Mich.

CHICAGO.—Market is about as last quoted. Best white comb brings 13, with off grades of white at 11@12; amber, 9@10. Some lots have come on the market, and are being offered at prices that would be reduced if buyers could be found. Extracted is steady at 6@7 for white, and 5@6 for amber grades. Beeswax, 27.
R. A. BURNETT & CO.,
Dec. 19. 163 S. Water St., Chicago, Ill.

NEW YORK.—Demand for honey has been very good during the past few weeks, especially for the fancy grades. Receipts have been extremely heavy with us, though at present we have our stock worked down very well. We quote comb—fancy white, 12@13; fair white, 10@11; amber, 9@10; mixed, 7½@9. Extracted honey finds ready sale. We quote white clover, 6½@7½; buckwheat, 6@7; amber, 6@7; Florida white, 6¾@7¼; Florida light amber, 6¼@7¾; other grades of southern honey from 50@70 per gallon, according to quality. Beeswax is in good demand at 26½@27½. When shipping, mark all packages, gross, tare, and net weight.
FRANCIS H. LEGGETT & CO.,
Dec. 27. Franklin and Varick Sts., New York.

WANTED.—To buy quantity lots of extracted honey.— Colorado honey preferred. In writing quote price on quantity.
EDW. WILKINSON, Madison, S. Dak.

WANTED.—We are in the market for 5000 to 10,000 lbs. fine amber extracted honey in 300-lb. barrels at 5c per lb. on track.
HUBBELL, BAKER & CO., Marlette, Mich.

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G. ROUTZAHN, Menallen, Pa.

FOR SALE.—800 lbs. comb honey—500 lbs. pure white clover at 11c; 300 lbs. of buckwheat at 6½c f. o. b.
WILLIAM VANAUKEN, Ellisburgh, N. Y.

The Bee=keepers'

REVIEW

for December shows in its frontispiece "The Neatest Apiary in Michigan," and the owner of this apiary, or, to be more exact, his son, contributes an article upon "Beauty and Neatness," in which he shows that they are of more importance in the apiary than they are generally given credit for.

Mr. Harry S. Howe, Mr. W. L. Coggshall's "lightning operator," tells how he reads the bee-journals—what is wanted in them, and how to get the most out of them.

There is an editorial of nearly three pages upon "Success." It is not a lot of dry platitudes and generalities; it is full of freshness and vigor, and of illustrations drawn from the editor's own experience. The reading of it may change your life from the dull common place to one of unbounded success.

Then there are the "Criticisms" of Mr. Taylor; the "Views" of the inimitable Hasty, the "Extracted Dept.," etc.

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W. Z. HUTCHINSON,
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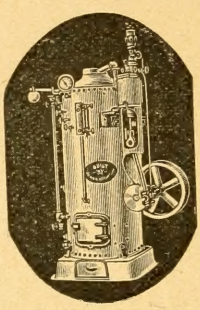

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$1.00 PER YEAR MEDINA, OHIO.

VOL. XXVII. JAN. 1, 1899. NO. 1.

STRAY STRAWS FROM DR C. C. MILLER

HAPPY New Year !

LOTS OF US have felt pained ourselves at the thought of Doolittle with broken ribs suffering pain at every breath.

H. W. BRICE says the fruit crop on a farm near one of his out apiaries is worth $500 a year more than it was without the bees.—*B. B. J.*

NO, I COULDN'T CONTRACT to furnish 100 lbs. of propolis, nor of beeswax either. Couldn't furnish more than ⅓ to ½ as much propolis as wax.

P. H. ELWOOD is favored by Editor York as one of the directors of U. S. B. K. Union. Good man. I'll vote for him too. [So do I. See editorial elsewhere.—ED]

GIVEN a good district and a score of hives, he would be a very bad bee-keeper, possessing business aptitude, and not afraid of work, who could not exceed $125 a year, says *British B. J.* I'm afraid not many districts in this country are good enough for that.

"WE BELIEVE that we are, here, on the southern limit of safe cellar-wintering ; and if we lived farther north we would invariably winter the bees in a cellar," says C. P. Dadant in *Am. Bee Journal.* That justifies my cellaring, but still I always have a hankering after out-door wintering.

OPPOSERS of plain sections will find an argument against them furnished by J. E. Crane, p. 915. The 1⅞ old-style section had a thicker comb than that in the 1½ plain, and the difference looked to him three times what it actually was. That is, a comb *looks* thicker in the old-style section.

C. P. DADANT'S article, p. 907, is a comfort to me. It settles the matter that eight-frame hives are better for me, although the large hives are better for him. At the same time, I envy him the advantages he has in the larger hives. [How comfortable it is to believe what we *like* to believe ! It gives us an uncomfortable feeling to think that we have adopted a sort of supplies that are not best suited to yield the best results.—ED]

WITH FENCES having cleats in thickness running 13 to 2 inches, a 1½ inch plain section will have a comb with a thickness about midway between the thicknesses of the combs in old-style 1¾ and 1⅞ sections, leaning a little to the smaller size.—[This will be true, perhaps, with old-style sections ; but the rule does not seem to hold true in the case of fence honey, but for what reason I do not know.—ED.]

THAT FENCES will make sections so even in weight that they may be honestly sold by the piece will need much observation to prove ; but *if* such proves to be the case, it will be a strong argument in their favor.—[While I do not claim that this result can be secured beyond a peradventure, yet the experiences of those who have produced and sold honey in plain sections seem to point strongly that way. —ED.]

PROGRESSIVE'S Somnambulist expresses fears lest a result of Critic Taylor's work may be to deter many of our most practical bee-keepers from giving valuable information possessed by them. Let us hope not. An evident softening of his manner gives promise that better work is coming, and I can't help thinking that he has done some good by making some of us look a little more closely to our p's and q's.

D. W. HEISE is in trouble that he lays to the devil of the *Canadian Bee Journal.* The types, under the manipulation of said devil, made Heise speak of a 39 frame super ! H. disclaims supers so large, and the next number reduces the size, making him work "three-nine-frame supers." Isn't 27 a rather large number yet, friend Heise ? Let the devil alone, and stand over that proof-reader with a club till he makes it "three nine-frame supers."

THE HOLTERMANN hive-cover is mentioned in *C. B. J.*, by D. W. Heise, as a flat cover costing about the same as the ordinary cover, absolutely water-tight, and a good non-conductor of heat and cold. Something in that line has been needed a long time. [If I remember correctly, our figures show that this hive-cover cost us more than the all-wood ones. It is cheap, as made by the E. L. Goold Co., because they have a good deal of sheet metal that is used for protecting certain packages, and this metal is practically good for nothing otherwise.—ED.]

HARRY HOWE will be after you for libel, Mr. Editor, for heading his article "Black Bees Preferred." He says he can work faster with black bees, but in the same paragraph practically says the Italians or Carniolans worked faster for him. He says that, when convinced that fancy stock will get enough more honey to pay, as he was the past season, of course he'll have it. And Coggshall will spend $50 in the spring in the same way. No, Harry's no longer a "black" man. [It seems to me that Harry is sort o' on the fence.—ED.]

YE EDITOR wonders, p. 933, why our house doesn't look as well outside as in. Well, the women run the inside; but I must draw the line somewhere, and I still have some control outside. I believe in a man standing up for his rights. [The line is seldom drawn quite so sharply as on the outside of the rear of one's house. Yes, I am a firm believer in men's rights—around the house, and in it too. There is one "right" I do not have in the house—that is, the liberty of throwing my coat and hat wherever I please, or of leaving books and magazines where I sat last.—ED.]

DOOLITTLE gives in *Progressive* a plan to prevent swarming that looks good. When the yield is on, and a tendency to swarm, cage queen in hive. Ten days later remove her and cage in the same place a young laying queen, with candy enough so she'll be liberated in about two days, cutting all queen-cells. The bees will do the rest. [Yes, it does look very promising; but I wonder how it would work generally to let loose the same queen back in her old hive. I suspect, however, that a *young* queen would do a better job at destroying the cells, while the old one might accept the situation as a preparation for swarming; and swarm she and the bees would, perhaps shortly after.—ED.]

I MUST HAVE BEEN very busy when GLEANINGS for Apr. 15 came, not to notice on p. 306 the assurance of the editor in claiming M. D. Andes on his side in the show of hands for section-holders and T supers. Mr. Andes distinctly says that he prefers *wide frames* to any other arrangement. O Ernest! [I turned away back to page 306, and I found that Mr. Andes says: "If you were to make me a present of 100 complete T supers I would not use them so long as I could get wide frames. I prefer the wide frames to any other arrangement for comb honey, except, perhaps, the Danzy super." The Danzy super uses section-holders pure and simple; in fact, Mr. D. adopted them after seeing how nicely they worked in our supers. But wide frames are section-holders without top-bars. I still claim that Mr. Andes is on my side. O doctor!—ED.]

"WHEN A QUEEN is discovered being 'balled' she should be released without delay, either by pulling the 'ball' of bees away from the queen singly, or in extreme cases by immersing queen and bees in water till the bees are forced by the law of self-preservation to release the queen."—*British Bee Journal.* Isn't smoking better than either way? Hold the smoker far enough from the queen so the smoke will be cold. Hot smoke will make the bees sting the queen. [I have tried all three of the methods spoken of above, and as a general rule I prefer the last named. But I have had cases where the ball of angry bees would not yield even to smoke. I have then picked the ball up by the wings of one bee, and dropped it into a basin of water. So far as I can remember the ball would always melt away immediately, and the bees would swim for the edges of the basin.—ED.]

WHEN I LOOKED at those two sections on p. 914 I said they were worse as to pop-holes than thousands I had produced of the old kind, but I suppose the shadow exaggerates the holes in the picture. [Those two sections were not introduced to show pop holes or no pop-holes, but only the slight ridging that was just barely perceptible in sections I found at Mr. Morton's. By the way, the Morton fence is not constructed in a manner calculated to do away with pop-holes. The posts or cross-cleats run clear up the full length of the section; and as they are ¾ inch wide they practically secure the same result, so far as pop-holes are concerned, as the old style scored-out section with an ordinary separator. If the fences are made as shown on page 912, Fig. 3, at A, results will be secured more like the bottom engraving shown on page 920, for this honey was produced with just such a fence. While I do not claim that a fence constructed as in Fig. 3 will do away with pop-holes in plain sections (I should be very foolish if I did), from what I have been able to observe it will go a long way toward that desideratum.—ED.]

GENERAL CORRESPONDENCE

BEE-KEEPING IN CUBA.

The Desolate Condition of the Island; How the Starving Ones are Fed; Reported by the Special Correspondent of Gleanings.

BY W. W. SOMERFORD.

[A few weeks ago I stated that Mr. Somerford was going to take a trip to Cuba, with his camera. As he had kept bees extensively on that island, and as he was about to visit it again, I arranged for a series of articles. He is to describe the conditions there existing, and state whether bee-keeping there will pay; tell us about the competition of Cuban honey; average yields per year, etc. We have just received the first article, and along with it comes a note which is of such interest that I submit it to our readers.—ED.]

I found so few bees on the island, and so much starvation and misery, that, instead of spending the winter, a month there was enough for me this time. I also investigated Porto Rico through Dr. Vieta, of Cienfuegos. His last honey crop was only three hundred and sixty thousand pounds from two apiaries. So you see California isn't in the lead with her 65 tons from one man.

W. W. SOMERFORD.

[*Only* 360,000 pounds of honey from two apiaries! and all produced by one man! My, oh my! Suppose the duty on Cuban honey were to be removed ; and suppose it is thrown in such quantities on the American markets ; and suppose—well, I will let the reader do the rest of the supposin'. Here is the article, and I am sure it will be read with interest :]

Starvation in Cuba ! I have just returned from a trip through Cuba—a sort of inventory trip—to ascertain what was left, after the war, of some of the finest apiaries in the world, and also to embark in the bee business again in Cuba after an absence of four years from that island. I visited many apiaries that were in a run-down condition, and will report through GLEANINGS the situation in Cuba exactly as one now finds it. But by way of caution I will suggest to those in a hurry to embark in the honey business in Cuba that there's plenty of time; the island is not such a paradise just now—not even for the modern honey-producer. And to those bee-keepers in the States who fear that the American market is going to be ruined by cheap dark grades of honey from Cuba I will say that Amsterdam, Holland, and foreign cities in general, get the honey that's produced in Cuba — not the American markets. The American honey-producers in Cuba, who have tried the United States markets, have paid for their experience in shipping, commission, lighterage, freight, cooperage, drayage (import duty 10 cents per gallon), and commission, to say nothing of leakage ; and by the time these charges are figured up, and the cost of package added, at the Cuban cost, 5 cts. per gallon, the shipper wonders why he didn't sell in Havana at 40 or 50 cts per gallon net (packages paid for by the honey buyer).

After traveling hundreds of miles over the country I came to the conclusion that next October or November will be soon enough for the would-be Cuban bee-keepers to embark for Cuba; and to impress the fact on the minds of those who, *like myself*, are in a hurry to get to Cuba before it is overrun (with any thing but starvation), I will describe one of Miss Clara Barton's Red Cross kitchens that are now numerous and famous in Cuba.

The kitchens are located in some out-of-the-way place or back street in the cities. This one was at Sagua Lagrande — a city of 20,000 inhabitants in Santa Clara province, on Sagua River. The kitchen is nothing more nor less than a row of pots under some old shed, surrounded by a good wall or fence, with water convenient. The pots are surrounded with masonry, the same as sugar-kettles, and hold about 100 gallons each. In the above city 2500 people are kept from starving by the provisions cooked and distributed from the pots, steaming hot, at meal time. A list of the ones nearest death's door is made. The number of persons in each family is taken down in a large book, and a ticket given to each family to correspond with his name. These tickets are carried daily to the kitchen ; about fifty people are let into the kitchen inclosure at a time, with tickets in hand, and they march in a row by the book-keeper, and a tally is made for each ticket opposite his (or her) name ; then the ticket is handed to the superintendent (Manuel Sanguily was in charge at Sagua City), who reads out the number of rations each ticket calls for ; thus, four and four, two and two, three and a half and three and a half, or one and one, which means one ration of boiled beans and one ration of rice. Two men stand over the pots of beans and rice, each with ladle in hand, one dipping beans, the other rice, with ladles that hold about a pint and a half each ; so one and one means a dish of beans and a dish of rice that will feed a person well for a day, so far as quantity is concerned.

The utensils carried for provisions by the starving people are as different as the people are themselves, ranging from gourds to 10-lb. paint-kegs. Such a variety can only be imagined, not described ; and such a variety of faces and dresses one would never see in America. There were many half-starved half-naked children from ten to fifteen years old that had gone barebacked and bareheaded in the sun until they were as well specked with "freckles" as a turkey egg—a pitiful sight it was to behold.

But the most touching sight was when all who had ration tickets were supplied and gone, leaving about a hundred desolate unfortunates outside the gate, with buckets, cans, gourds, etc., but no tickets to admit or entitle them to the remaining rations in the pots, as some food generally remains after the list has been supplied.

Mr. Sanguily stood in the gate and beckoned in the ones who were the nearest to death's door, and had them given "half and half," or half a ration each. But to look into the faces of those poor starving people, when each was trying his best to look the most miserable in order to be beckoned in for half a ration, was a sight that a lifetime can't erase from one's memory—no, never. The misery and desolation in Cuba have never been told, and the martyrs for her liberty are too numerous to be numbered.

Navasota, Tex.

[One can hardly fail to have his heart touched by such things as these. For one I feel proud that our dear Uncle Sam, although perhaps a little late, has freed the Cubans from the hand of the despot. May Christianity, enlightenment, and progress find their way to these benighted hearts.—ED.]

24211

LARGE HIVES—OBJECTIONS.

Large Hives for Comb Honey; Faults of Large Hives as Compared with Standard Eight-frame Langstroth.

BY C. P. DADANT.

Now, Mr. Editor, I wish to mention the most weighty objection to large hives; and that is Doolittle's remark that, if too much room is given, or the queen does not fill all the breeding space, the bees will become accustomed to putting honey into the brood-chamber and will crowd her out.

Please take notice that this is only a comb-honey objection. Those who support small hives seem now to hold that they are needed for comb honey only, and Hutchinson has lately said (and I take note of it), that "for extracted honey the size of hive matters little *provided it is large enough*" (italics mine). This is virtually acknowledging that the large hive is absolutely necessary to raise extracted honey. Now when you rear comb honey, according to those who do not agree with me as to size of hives, it is necessary to keep the queen on only the number of combs that she can well fill with brood, in order to get a good storing in the supers Very well; we are agreed, and I hold that this can be done with the large hive best, since it will accommodate from the most prolific to the poorest breeder. All it requires is a little attention, and you have the advantage of knowing the capacity of your queens and the chance of breeding from the most prolific. Is this too much trouble? It is a little more labor, and requires a little more judgment; but when you once have a populous colony it will be much easier to keep it strong in a large hive than in a small one, as I have shown you when speaking of wintering and breeding.

In some of your remarks in a previous article you ask whether it is not a great deal of trouble to add one comb at a time to the space of a colony. It is not absolutely indispensable to add only one at a time, and you may add two or three according to your opinion of the probable prolificness of the queen. One or two examinations during the spring ought to be sufficient.

Hutchinson has said, and still repeats, that queens are the least expensive part of a colony, and that it is better to keep all the hives and combs fully occupied than to use the queens to their greatest capacity. To us, in early spring, the number of queens on hand is the most important question; for we then nearly always have empty combs and queenless colonies; and I dare say that every beekeeper has more hives and sets of combs on hand in spring than he has queens, and he is very well satisfied, and considers himself very successful if every hive is alive and every hive has a queen after winter. So it is the queens, *the queens*, that have the value to the apiarist after winter, and it is *what the queens are likely to do* that makes his prospect better or worse. That is why we want our queens, all of them, to do all they can for a large production of population, and we are quite willing to run the risk of having to remove a few combs from the brood-chamber, if comb honey is wanted, when the queen is not able to fill all, especially as those combs, at that time, need not be idle long, for they are needed for whatever increase is expected or wanted.

By giving *all* our queens *all* the room they need, we achieve what we consider the most desirable aim—get the greatest possible number of bees from the number of colonies we have, in time for the harvest.

And, by the way, I have re-read my last article on the disadvantage in cost, and I find that I make the case altogether too strong against the large hive. I have figured it at twice the cost of a small one; but I want you, Mr. Editor, or your business manager, friend Calvert, to tell us just how much difference there would be in the cost between a hive containing 11 combs instead of 8, with one dummy, and made like yours, but with frames just deep enough to suit a hive made of 12-inch lumber. If I am not mistaken the Dovetailed, Simplicity, etc., are all regular-depth Langstroth hives, and are made of 10-inch lumber. Just figure them made of 12-inch lumber and just as deep as could be conveniently made out of this. They would be very near the size of ours, which are made of 12¼, and it seems to me, at a rough guess, that, with the dummy and all the enlarged supers, they would not cost to exceed 25 to 40 cents each in excess of your small hive. The interest on the money, and the sinking fund to pay them up in 30 years, would not make the additional annual cost to exceed the value of a pound of honey per year. What makes the hives expensive, as we build them, is the telescoping cap, the double back, the projecting bottom-board, etc.—a thousand and one little nothings which we use just because we are accustomed to them.

Now, Mr. Editor, somebody asks me whether I think that the large hives are going to "take," and become prominent. I will frankly tell you that I think not. Say what we may, the $1.00 hive will sell because people go for cheapness. And if it were not a question of cheapness, but only of reason, does it follow that people would take the more reasonable course?

Do men chew tobacco because it is the best thing to do? Do our women wear tight corsets because they are more healthful? Do the Chinese bandage the feet of their girls because they will be benefited thereby? Do our little girls wear short skirts in winter and long hair in summer for their comfort? Why does a lady carry her pocket-book in her hand instead of having a pocket to her dress? Is it more convenient? Why does America take the Philippines and pay out twenty millions of her money? Is it for her moral or her pecuniary advantage? Nay, we are all more or less like sheep, and follow the bell-wether, whether she leads us right or wrong. Just see us now, throwing away our feelings, patting the British Lion, with the confidence of a child, forgetting that, less than forty years ago, he did all he could to promote secession and break up the Union. His cat-like paw is velvety and soft just now; but look out for the claws, if we happen to reach out for a dish that he covets.

Hamilton, Ill.

[As I understand you, friend D., you prefer the large hives, even for comb honey, because their brood-nests are capable of equaling the capacity of the best queens; and that, whenever one is not able to fill the whole brood-nest, you contract the hive to her needs.

Now, here is a question I want to ask you: How many frames, of Quinby size, will your average good queens fill with brood, as frames are ordinarily filled? What I am getting at is this: Is the eight-frame single Langstroth brood-nest, in your opinion, large enough to accommodate the breeding capacity of the average good queens?

Our Mr. Calvert, who makes out our estimates, has figured on the two styles of hive you describe, and he estimates that the larger one would cost only about 40 or 50 per cent more than the smaller one. If that is the case, then you, in your preceding article, made a stronger case against the large hives than was necessary. It shows you meant to be entirely fair.—Ed.]

* * *

EUROPEAN BEE-KEEPING.

Wander-Verein of the German-Austrian and Hungarian Bee-keepers.

BY F. GREINER.

The conventions of this association have always made a favorable impression on me. One reason is, perhaps, because I am a German myself; but I believe more so because not only the common people are greatly interested in them, but also the authorities of state and municipality have a way of showing their interest, which is at least pleasing and perhaps encouraging. The meetings are frequently led or conducted by some high official, perhaps a secretary of agriculture or his representative. This has some advantages. Although a president of this order can not be expected to be and is not at home on the subject of bee-keeping, still he understands the parliamentary rules better. He is not apt to be carried away with this or that subject. From his disinterested standpoint he can often better decide when to close a discussion. Personalities are not likely to creep in, etc. The fact that a man of high rank presides at such a meeting lends weight and importance to it in the eyes of the general public, and casts an edifying light upon the whole pursuit. Whatever may be said against the practice, the fact remains that the gatherings of the Wander-verein have almost always been conducted in a faultless manner. The fact that the government lends its help to the undertaking causes a better attendance; and when bee-keepers know that every thing will be done by the city in which the convention is to be held, that no efforts will be spared to make it pleasant for the attendants, and to help to make the whole a success, that also has a wholesome effect, and induces many to come to these meetings.

Generally the inhabitants of a city where a convention is to be held offer free board and lodging to all who prefer this to hotel board, and much is done to amuse the guests. How far this is carried, the reader can form an opinion from what took place at the Salzburg convention last September, and which I will here relate, translating it from the Leipzig *Bienenzeitung*. As there was only a forenoon session on the first day in Salzburg, the afternoon was set apart for sightseeing and amusement. Accordingly the great swarm of bee-keepers, over 200 strong, with Dzierzon at the head of the procession, carried on the shoulders of men, made their way to Castle Heilbrunn, in the vicinity of the city. After all the sights were taken in there, the guests were led on by the guides to a celebrated cave called the Stone Theater. The greatest surprise would meet them here. After all had entered, differently colored lights flashed up all among the rocks, and a grand illumination took place. The sweet strains of (as it seemed) angels' voices singing were heard in the distance, and coming nearer. As soon as this had ceased, the rocks, high up, seemed to open up, and the Dwarf King, in rock-colored dress, and with long flowing beard, appeared, and began to address the surprised listeners in poetic strains, welcoming them to Salzburg. No sooner had the king spoken than a multitude of cunningly dressed dwarfs (or perhaps so-called brownies) seemed to emerge from among the rocks. They all carried baskets filled with bouquets and flowers, with which they proceeded to decorate the bee-keepers. The surprise was a perfect one, and created a storm of applause. In company with the happy set of youngsters, the return trip to the city was then made.

There are still other features connected with the Wander-verein that materially add in making it a success, and wherein its members have a decided advantage over similar organizations here; namely, they receive every year an appropriation from the State, to be used for various purposes, but principally for prizes and premiums; for it will be remembered that there is always connected with the convention an exhibition of bees, hives, implements, literature, etc. The cities also often donate something for these purposes, sometimes ornamental pieces like silver cups and the like.

Furthermore the railroad rates are very low, in particular to members of that kind of organization that tend to improve and educate. Since the roads are owned and operated by the government it is a very easy matter to obtain these low rates. Even laborers are often carried for almost nothing from one part of the country to another. For instance, should there be a scarcity of laborers in certain districts at certain times of the year, the government at once makes an effort to equalize; and after the work is done the laborers are carried back to their homes for an insignificant sum.

When we take into consideration that distances in Germany and Austria do not amount to much compared with distances here in

MR. COGGSHALL AND HIS HELPERS READY TO START FOR THE OUT-YARDS.—SEE EDITORIALS.

America, we need not be surprised that the attendance at bee-keepers' conventions there is so much better than here.

Naples, N. Y., Nov. 30, 1898.

[If we could have government support, and if, in addition, the government owned the railroads, so that we could get low rates ; if we could temporarily shrink Uncle Sam's domains to cut down mileage, perhaps we could have big conventions. It is easy to see why the Germans beat us on their large gatherings. —ED.]

DOOLITTLE ANSWERS DR. MILLER.

Egg-laying of Queens Dependent upon the Kind of Honey Produced.

BY G. M. DOOLITTLE.

I supposed I had annihilated that "arena" fitted up for Dr. M. and myself to fight in ; but it seems that the good (?) doctor is bound to fight with Doolittle anyway, as a Straw (p. 869) in December 1st GLEANINGS would denote. After telling what Dr. E. Gallup says about a queen of his occupying 24 Gallup frames fully with brood, Bro Miller wants to know how I reconcile that with a statement I made, that 9 Gallup frames entertain the best queens to their fullest capacity as to egg-laying, and if Dr. Gallup's queen did not need nearly three times as much room. Well, my dear doctor, had you read the bee-papers more carefully during the past, and remembered what you read, you would have known that Gallup's 24-frame hive was worked for *extracted* honey, while Doolittle was talking about hives worked for *comb* honey. But I think I hear the doctor saying, "Has the working of a hive for extracted honey any thing to do with the capacity of the queen for egg-laying? or does the working for comb honey decrease her capacity any?" his eyes giving that peculiar twinkle they have at times when he is thinking to himself, "Guess I have got you this time." Dr. M., let me tell you something. I am not going back through musty volumes of old bee-journals to hunt the matter up to get exact figures, but shall tell it from memory. Up to 1874 I had thought that 9 Gallup frames would entertain the best queen to her fullest capacity, no matter whether the colony was worked for extracted or comb honey ; for up to that time that was the greatest number allowed when working for either. In the spring of 1874 I read up on the (Adair) Long Idea hive, and became infatuated with the same. I made two of them, working one for extracted honey and the other for comb, these hives being made to hold 32 Gallup frames when the whole number was in. I selected two average colonies out of my nine-frame hives ; and when the nine frames were pretty well covered with bees, and brood in some six or seven of the combs, I set each over into these four-foot hives. At the same time I selected another colony of about the same grade, to be worked for extracted honey on the tiering-up plan, and one to be worked for comb honey on the nine-frame "side and top box" plan I had used before. In due time the two long hives were filled out with the full 32 combs, with sections on the one for comb honey, and extracting going on every third or fourth day from the other, as used to be the style under which extracting was done. In the tiered-up hive, the queen was kept on the 9 frames by means of a slatted honey-board, and the one worked on the side and top-box plan manipulated as well as Doolittle knew how. Now for the result : Before the basswood harvest arrived, the queen in the long hive, worked for extracted honey, had brood in every one of the 32 combs, to the amount of some 18 or 20 combs *full* of brood ; while the one worked for comb honey, having 32 combs, had brood in only 13 combs, the same amounting to only about 9 frames *full*, the rest of the combs being partly occupied with honey, which ought to have gone in the sections, and would have gone there had this queen had only the 9 combs for her brood-nest. So the queen from the extracting-hive was laying about 5000 eggs daily, as Dr. Miller says, to where the one in the comb-honey hive was giving only about 2500, each evidently laying to her fullest capacity. What made the difference? There is something about extracting honey that causes bees to *feed* a queen in such a way that she will give double the eggs, if she has comb room, that she will when no extracting is done, and thus a queen is coaxed to produce and develop all the embryo eggs she has in her ovaries, in the shortest possible time, while under normal circumstances she will be laying up to her fullest capacity when not producing half the number of eggs she does under the stimulating influences which come from extracting.

All four of these queens were reared during the swarming season of 1873, so they were less than a year old when the experiment was commenced ; but the one in the long extracting-hive died of old age that same fall, while the other three lived and did good work the next season. I have tried nearly the same thing several times since, and proven to my entire satisfaction that a queen will occupy double the number of combs with brood, where extracting is being carried on, as often as the combs are filled with honey, that she will when her colony is worked for comb honey.

In passing I will note that the hive worked for extracted honey on the long-idea plan gave 566 lbs. surplus, while the one worked on the tiering-up plan gave about 400 lbs., thus showing that I had only 166 lbs. more honey as a result for double the brood reared. The long hive worked for comb honey gave only about 50 lbs. of section honey, with the 32 combs nearly solid full of honey, while the one worked on the side and top storing plan gave 309 lbs. of section honey, with enough below to winter the colony on. The average from the whole apiary that year was 166⅔ pounds from each old colony in the spring, all of which was comb honey, excepting that from the two colonies worked for extracted, the whole number in the apiary in the spring being 69.

Now just a word more : I do not get, on an average, any more brood in the ten-frame Langstroth hives at the out-apiary than I do in my nine-frame Gallup hives here at home. To be sure, I often have brood in the whole ten frames, but not more than enough to fill from six to seven full, while the nine Gallup frames are *full* clear out to the corners, as Ernest says the Holy Land and Cyprian queens will do. Now if, when working for comb honey, I get to the amount of only 6¾ Langstroth frames of brood out of 10 frames, or 9 Gallup where I use 12, 18, 24, or 32 in a hive, will Dr. Miller say that 9 Gallup frames or 6¾ L. frames will not entertain any queen to her fullest capacity in this locality? And allow me to say, in a *very friendly* way, that I am inclined to think that what is applicable to my locality will come very nearly the truth in other localities, if others will work along the same lines Doolittle does, and experiment, and note things as carefully.

DOOLITTLE ANSWERS THE EDITOR.

And now I come to another Straw (p. 870) where the editor wishes me to explain. And that "twinkle" in Dr. Miller's "eye" caused him to wish the explanation. It's not very often that the doctor gets in two "twinkles" at Doolittle in one batch of Straws, as he has this time. The editor points me to his answer to "Straw regarding Dadant's statement to the effect that queens will lose time in hunting for empty cells" where she has just room enough for her needs, but for the life of me I can not tell whether he agrees with Dadant or not. As Dadant uses only *large* hives, I doubt whether, from practical experience, he is capable of telling just how much a queen hunts about for room, unless he has seen her doing so, because his large hives allow the bees to crowd the queen with honey (when working for section honey) by their starting storing in the combs below instead of entering the sections *promptly* with the beginning of the season, as they should do. If the queen does so hunt I have never been able to detect her so doing; for where frames are filled solid with brood the young bees emerge "solid," and so she keeps on following the brood as it emerges, in regular order. But if I read the editor aright he wants to know if queens reared by the plan given in "Scientific Queen-rearing" do not need more room for egg-laying than those formerly reared by old plans. In answer to this I will say that, as the older readers of our bee-literature will remember, up to the eighties, and for years, I used only six and seven Gallup frames to the hive, and a number of articles can be found in the *American Bee Journal* headed "Those Six-frame Hives," in which I showed how I succeeded in producing tons upon tons of comb honey by the use of from six to seven frames for brood. And even to-day, where I find a queen that does not fully occupy more than six Gallup frames at the beginning of the honey harvest, that colony has the other three combs taken away from it, as years of experience has taught me that a lot of empty comb in the brood-nest, at the beginning of the honey harvest, is the greatest drawback toward a successful result in comb honey of any thing I have to contend with. But I am prepared to say that the number of colonies shut on six and seven brood-combs at the beginning of the honey harvest is not nearly so great as it was before I practiced the plan of rearing queens as given in "Scientific Queen-rearing."

Borodino, N. Y.

[While Doolittle does not say so in so many words (owing, no doubt, to his modesty) I infer that quens reared by his method require larger brooding-space than queens reared by the old ways—at all events, that has been our experience. A honey flow, feeding, or large cells, seem to be important requisites.—ED.]

SECRET OF SELLING HONEY.

A Good Article, and as Cheap as Sugar.

BY S. F. TREGO.

Would it not pay a great many bee-keepers, who are properly situated, to aim to produce more honey, and sell it cheap enough so that their neighbors can afford to eat it every day? I know that 10 cts. per pound for comb honey is very cheap from the bee-keeper's point of view; and, in fact, I would not care to produce it for less; but put yourself in the place of the ordinary workingman and you will think it is, to say the least, high enough. I know that not a tenth of my neighbors have honey once a week, and yet they all use sugar every day. How do I propose to get them to use more honey and less sugar? Simply by producing a good article of extracted honey, well ripened, and selling it at a price that will compete with sugar. That is the conclusion I have arrived at. I got a crop of something over 350 pounds of nice heartsease honey from my 6 colonies (spring count), and have been selling it at 15 lbs. for $1 00 (granulated sugar is 16 lbs. for $1.00). I was out half a day and sold 96 lbs., and since then I have made no effort whatever to sell. It just sells itself. Nearly every time I go to town some one will ask, "Have you any honey left?"

"Yes"

"I want a dollar's worth."

One day I was in Cable, and sold $3.00 worth without trying, and last night I went over to a neighbor's and he gave me an order for a like amount — one for himself and two for another man. This leaves only 15 lbs. to sell yet, so the fun is about over for this year.

When that goes it will be 300 lbs. sold for $20.00, which is pretty good for 6 colonies, when we consider that the clover was a total failure and that they were increased to 17 colonies.

This honey-flow was a surprise to us, as many colonies had but five combs when it began; but by the time it was over, all were full.

We have great hopes for next year. I am putting up a honey-house 10 x 12, two stories high, that will be a great help in handling the crop at the least expense. It is situated at the lower side of the apiary, and an inclined plane will lead to the second floor, where the extractor will stand. From there the honey will go through a strainer and downstairs by a pipe into the barrels, which will be well waxed, and will stand on strong benches high enough from the floor so that the honey can be drawn off into 15-lb. pails.

I have taken great pains to tell all who buy where and how to keep honey, and how to liquefy granulated honey; but another year I shall have some of those little pamphlets put out by the Roots, as they explain it better than I can.

The main point is good honey. If it is good, and cheap enough to compete with sugar or molasses, the common every-day people will have it as soon as they learn what it is.

One patron, when he bought his second lot, said it was about as cheap as molasses, and a lot cleaner. His next neighbor, in ordering his second lot, said it was cheaper than buying so much sugar.

Swedonia, Ill.

[It is true that not enough emphasis has been placed on the quality of extracted. It should be well flavored, thick, and cheap enough to compete with sugar. When these conditions are secured, honey will sell of itself. Why, my "taste" has become so that I can't like any thing but the best thick honey. Let the public once acquire this taste, and if you have the goods to supply it they (the goods) will sell without any effort.—Ed.]

A PURE-FOOD LAW MUCH NEEDED.

How May it be Secured ?

BY F. A. SNELL.

The matter of pure foods is of vast importance to every citizen. It is one in which the old and young, rich and poor, have a mutual interest; and if such a law could be secured and enforced the benefits would be mutually shared. I have read with interest what has been printed in our journals on this important subject. I think some of the writers have not taken as broad a view of this matter as should be the case. The question is a broad one. It has been considered, it seems to me, too much by bee-keepers as bearing on their interests as honey producers and sellers. That is all right, I think, so far as it goes. The producers of pure maple syrup and sugar are wronged the same as are bee-keepers and others who are legitimately engaged in producing pure food products on through the list; but it must be remembered that the above referred to parties composing but a very small part of the whole people of our country. In order to secure the desired law and its enforcement, the broad and correct view must be taken that the called-for law is for *all* our people, as it truly should be, and embrace all food products.

It must be evident, to every one who has given the matter any intelligent thought, that the health of our people has been much injured by the miserable imitations of pure foods, and medicines as well, which we have bought and used, paying the price at which the pure goods should be sold for. We know that people have been made sick by the fraudulent mixtures when eaten. A national law would be very desirable; but there are doubts as to such being secured very soon. Every State not now having a good law of the kind should pass one at the earliest opportunity. As many of our State legislatures are now in session an effort should at once be made with them for a good law on this matter of pure foods, etc. I think a State inspector, to see to analyzing samples of these products, and making collections from different manufacturers and dealers, down to the retail dealers, or grocers, should be chosen. He should have, I think, full power to commence suit against any party who may be known to have on sale such goods. A fine by law should be levied on every one found guilty of its violation. Suspicious goods could be sent to the inspector for analysis, by any citizen of the State. Imprisonment for second or later violations of the law would be advisable. With such a law, every one selling bogus goods would be held responsible, and would soon learn that the people had rights that dealers should respect.

France, England, Germany, and some other countries have had such national laws for years, and such have been enforced, including imprisonment, to the great satisfaction and benefit of the masses. In our State we have fair laws in this matter, but I think they should be made more complete and far reaching, with an imprisonment feature, and the appointment, or, better, the election, of an inspector by the people. Evidently we should have the best law that can be framed for the protection of our people against unscrupulous greed and dishonesty. I believe that, to secure the much-needed legislation, not one or two industries, or a few that are now wronged, will by delegates or committees be able to do much; but when we unite the interests of *all* our people for the rights and best interests of the masses, we may win. We are all consumers, and that is where our strongest points of argument and reason will best apply and have the greatest influence. Such a view is far above any thing in the line of class rule or class interests. With a clear, well-directed effort in the lines above suggested, by a large representation, it seems to me any respectable legislature would do what would be so reasonable and just as to pass a good pure-food law, and thus give relief to a long-suffering people.

The above is only a little of what can be said on this all important matter. I hope many others who can do much better than I will give their views and throw more light on the subject. Practical ideas and united action, with a move along the whole line upon the gang of adulterators in securing pure-food laws and their enforcement are now seemingly more needed than ever before. Every article used for food should be branded just what it is, and sold for such. The honest producer puts up pure and healthful goods, and is forced to sell them at little or no profit, while a good margin is made upon the bogus. The innocent consumer often buys the inferior, and in good faith that it is pure, with very few exceptions perhaps. He gets the health-destroyer when he supposes he is buying the health-preserver or health-improver. Thus one might continue in naming the wrongs from which we suffer by these infamous abuses committed by the adulterators of food products.

Milledgeville, Ill.

BEE-VEILS WITH A FACING OF HORSEHAIR.

Quotation-marks that Don't Quote; Bamboo Canes on Lake Geneva.

BY F. L. THOMPSON.

Dr. Miller asks about horsehair veils. There are none, I believe, that have any more than a facing of horsehair. I have used one for two seasons. The facing is good yet. Lately some holes developed in the cotton tulle that forms the body The horsehair is about equal to black cotton tulle for seeing through, and has the advantage that it never gathers in folds. I do not know how it would compare with silk tulle, having never used this. If the latter is better, why couldn't it be kept stretched in a little frame set in the veil? How about the fabric called "illusion," sometimes used for ordinary veils?

While literary infelicities are up, I want to ask Dr. Miller and his careful imitators, Gleaner and B iler, why that memorandum-book style of saying "in *Review*" instead of "in *the Review*." This is a small matter, but they are so persistent in it as to powerfully excite my curiosity. Surely, they don't mean that the former phrase is correct, nor the latter incorrect.

And the Chicago breezes fanned somebody's "brow,"they did. When I read that,my "skin" experienced a creepy "feeling," something like that felt when I see a "young man" wearing his "hat" on one side of his "head," or a "girl" chewing "gum." Verily, the use of quotation-marks that don't quote has become fearfully and wonderfully extended. I could cite many such examples from the bee-journals of the last few months. While admissible in some degree, such extreme applications are *never* found in good literature. Then there is the wooden and commonplace use of the exclamation-point, etc. But what riles me particularly is to have the proof-reader interfere with my punctuation. Beyond certain general rules, the niceties of punctuation, and particularly the use of the comma, are, according to the best authorities, matters of taste. I suppose the proof-reader gets so used to supplying punctuation that he does so indiscriminately. But when he sees that one has his own notions of punctuation he ought to confine his work to the correction of real errors, applying only such rules of punctuation as are universally used in good literature.

Here is an item for A. I. R., which I translate from *L'Apicoltore*, which translated it from some German paper. Herr Reepen, a well-known bee-writer, has been visiting Editor Bertrand, of *La Revue Internationale*, who lives on the shore of Lake Geneva, at Nyon, Switzerland. He says:

"Great was my surprise to find in the magnificent garden, which descends to the edge of the lake, canes of bamboo of a height that I have not seen equaled outside of the Indies. On inquiry I learned that it was a variety of bamboo that does not fear the rigors of winter, indigenous in the high mountain regions of Japan, and probably not existing in any part of Europe. Now, thanks to the kindness of M. Bertrand, a healthy shoot may be found here in Oldenburg, and is prospering wonderfully. I do not doubt that it will successfully pass the northern winters, as the temperature at Nyon, too, often descends to —13°R. [+3 F.] Nearness to running water is a condition of its growth; and when this is not lacking, such a variety of bamboo will become an incomparable ornament of parks, gardens, etc. The dusky-green color of its leaves is especially remarkable, not changing even in winter."

Montrose, Col., Oct. 26.

THE DOOLITTLE METHOD OF QUEEN-REARING.

How to Rear Giant Queens.

BY C. T. BONNEY.

Since the Oregon went around Cape Horn and whipped the whole Spanish fleet, Oregon doesn't seem as far out of the world as it did before. Now that peace is declared I thought a red apple from Oregon might not look bad in your journal.

I have noticed considerable in GLEANINGS lately about the Doolittle method of queen-rearing, and I should like to drop a mite in that direction in hopes that some brother bee-keeper will experiment along the same line. I use the Doolittle method because I can raise larger and better queens by that process than any other; and what I have to say in regard to it is only with the hope that others may have the same success with it that I have had. I know quite a number of the bee-keepers who use this method are old-timers, and well versed in bee-lore, yet I believe not all of them have caught on to the greatest advantage in the Doolittle method, which with me is being able to raise the largest queens that I have ever seen—larger than I ever saw issue from natural swarming. When I began to handle bees I was not long in learning that they sometimes build small queen-cells, and from small cells come small queens, and small queens almost always head a small or weak colony; while large queen-cells bring large queens, and large queens are almost invariably prolific. It occurred to me one day that I might raise all extra-large queens by making the queen-cups larger, so I accordingly made some form-sticks one-third and in some instances one-half larger than an ordinary queen-cell, and found to my great satisfaction that the bees would draw out the length in proportion to the diameter, and thus I have raised the largest and most prolific queens that I have ever seen.

I made up my mind some time ago that the editors of the bee-journals had started in to fence the whole bee-fraternity, but their dominion hasn't reached Oregon, so we had to devise one of our own. I am willing to admit that the slatted fence separator is better than any of the old styles, yet the one I use suits me better, which is a fence made of galvanized wire cloth, eight meshes to the inch, and the same width of tin separators. When perforated with about three dozen ¼-in. holes it allows as free passageway as I think is necessary, and each bee can see what its neighbor is doing in the adjoining section, and it allows the freest circulation of all. I find that bees will work evener in the supers with these fences, and will ripen the honey quicker than with any other. It is easily cleaned, and will last a lifetime; besides, it has an advantage over all other separators in extracting unfinished sections. Two wide frames can be dropped in each basket of the extractor, and the honey throwed out, in less time than it takes to write it, and that without removing any sections. If any have a patch of cappings in the center a thin knife can be run under the wire fence, the cappings removed, and you can see just what you are doing all the time. Honey can be extracted in this way almost as fast as from the brood-frames, depending, of course, on how near the sections are finished.

Woodburn, Ore., Nov. 21.

[I am inclined to think there may be something in the idea of large cells producing large queens. I should like to hear from Mr. Doolittle on this point.—ED.]

BEE-STING DEATH.

An Interesting Account of the Results of Stings on a Horse.

BY GEO. L. VINAL.

Perhaps this article would be more appropriate for a medical journal. Thinking it might be interesting to the readers of GLEANINGS, I will give an account of a case that came under my observation.

September 7th, about 2:00 P.M., one of the men was passing by some hives which were about a hundred yards from him. He had passed by in the same place frequently all summer. It was a partly cloudy and very muggy day. I had come from the bees before dinner, and saw no robbing. They were as quiet as usual. For some cause the bees attacked the horse. The man succeeded in getting him partly unharnessed, when he cleared himself from the wagon, when he and the man took French leave. The horse got about 200 yards away from the bees, and stopped. I was called, and found the air full of bees. Covering my head and face with netting, I went and led the horse into some bushes, and then to the barn. I got to the barn at 2:25. No bees followed. The horse was a large one, in good condition, and would weigh about 1200 pounds. His head, nose, ears, neck, and body were pretty well covered with stings. A strong wash of ammonia was made, and applied over him. At this time he did not appear to be in much pain, and stood quite still; but in about ten minutes he began to shake his head, and respiration began to increase. I took his pulse, and it had increased to 50 per minute. The normal pulse of a horse is 36 to 40. The normal respiration is 10 to 12, and the temperature is 98⅗.

At 2:45 the pulse was 60, respiration 30, temperature 102. The animal would stretch, and urinate of a highly brown color, with frequent evacuations of the bowels, of a thin and watery consistency. At 3:00 P.M. the above symptoms had increased in frequency. The pulse was 80, respiration 60, temperature 104, with marked symptoms of delirium. He would throw himself on the bedding; would jump up again, and plung and tug at the ropes that he was fastened by; would whinner in a loud shrill voice. These symptoms lasted until 4:15, when they began to abate, and the respiration began to be somewhat stentorious; he also began to show paralysis of the extremities.

At 6:00 P.M. he was unable to get up. The pulse had decreased again to 60; the temperature had increased to 105. The respiration decreased to 40, with the stentorious breathing more marked.

These conditions continued in a more marked degree until he died, at 9:30, or about seven hours after he was stung.

An autopsy was made the next morning at 7:30, or ten hours after death. The whole alimentary canal was congested; the lungs were gorged with blood; the cavities of the heart were filled with clotted blood of a dark viscid consistency, and all of the muscular tissue was filled or congested. The coverings of the spinal cord were congested; also the covering and substance of the brain.

We are told in the bee-journals that the poison of the bee is formic acid. We are informed in scientific works that it can be extracted from the ant, the caterpillar, and numerous other sources, and that it can be produced chemically. In some medical works we are told that it is used in a diluted form, applied to the parts of a paralyzed limb; that its application increases circulation and a prickling sensation over the parts it is applied to. Now, will some of the shining lights of "beeology," who are scientific medical men and chemists, please inform us why that strong and healthy animal should die from a few stings in about seven hours after he was stung, with all symptoms of paralysis?

Charlton City, Mass.

W. H. A., S. C.—We would not advise you to move your colonies at this season of the year. As long as the bees can fly nearly every day you might lose half your bees by removing to the porch mentioned in your letter. If you lived, however, in the North, where the bees could not fly for a period of three months, the change could be easily made.

RAMBLE 158.

Bee-keeping in Northern California.

BY RAMBLER.

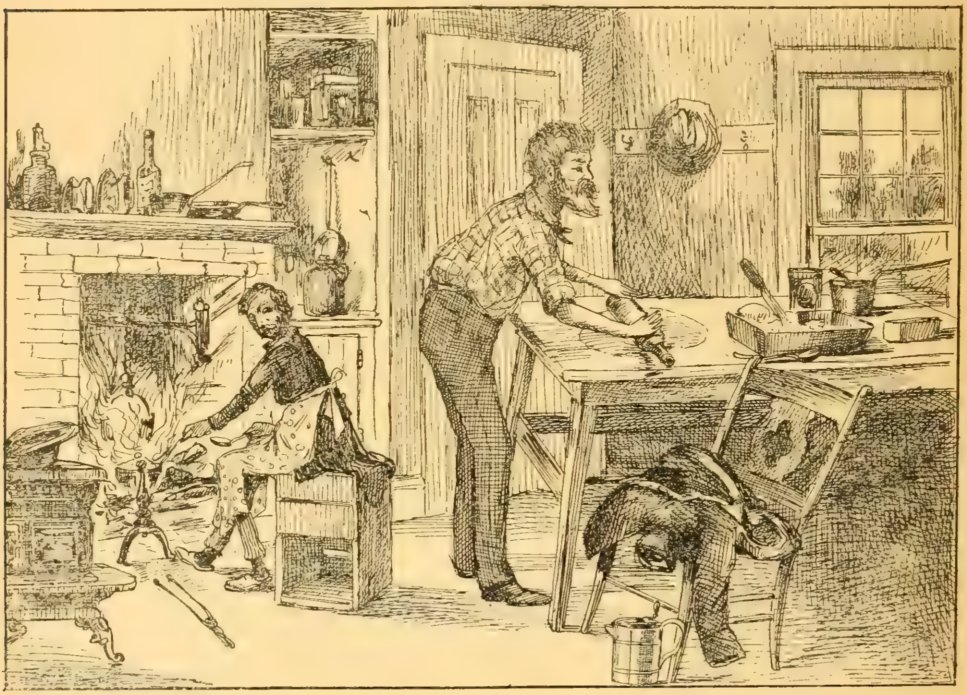
We were in a mining town, where the necessities of life ruled high in price, and the food question was of some interest to Mr. Levering and myself. Five dollars a week was the regular price for board; and we entertained the idea that, with proper economy in baching, we could save enough to pay us for indulging in that mode of life. In fact, I was so used to it that I preferred it; and in times of yore the judge had practiced it. His late brother was a bach, and, having all the tools necessary for promoting the enterprise, why not?

We accordingly set up our household gods in the little old cabin near the apiary. The judge occupied one corner of the cabin with his bed, while the other side and corner were occupied by an ample fireplace and stove. The dormitory where I spread my folding cot was in a brand-new building termed the vinegar-house. The late Mr. Levering made quantities of the latter beverage from honey, and there was 18 barrels of it on the premises. I felt perfectly safe in sleeping in the room, on account of the strong "motherly" influence that made itself known to the sense of smell.

In cooking we at first divided the honors, and I started in blithely upon the pancake department. But with the very first breakfast I knew something was the matter with the judge's gastronomy. He did not say much, but the cakes were evidently lacking some ingredient his grandma used to insert.

Now, some of the leading bee-men in California, and some Eastern bee-men, and even John Calvert, had all eaten my famous cakes, and pronounced them good; and now here in this lonely mountain fastness the judge turned his plate against them. I was so disappointed that my interest in pancakes waned from that moment, and I stopped their manufacture.

Some mornings after this stoppage the judge surprised me by remarking that he was pancake hungry, and he believed he would make some. It is needless to say that my interest in that department revived, and I was all attention to the new mode of manufacture. The second move he made, however, commenced a series of discouragements to my eating them, for he used soda, which I do not like, and so strong that the odor of the cakes while baking had a stunning influence upon the flies, which were plentiful in the room. Then I could see by the way they bellied down in the center that they would be as tough as a piece of leather. Did I eat any of those cakes? No, sir! I was anxious to live through the summer, and I resisted every time the judge passed the plate to me. He was evidently disappointed at my refusal, and proceeded to dispatch them himself. Now, some bee-men and others have an idea that the



BACHING IT AT AN OUT-YARD IN A LONELY MOUNTAIN FASTNESS.

judge is a feeble man, and not long for this world. I was tinctured somewhat with the same opinion until I saw those flat soda pancakes disappear. I immediately made up my mind he was good for thirty years more of life. He is now 71. Why, land sakes! you all know what a strong stomach a corn-sheller has for digesting things. Well, a Levering pancake would give it the colic in five minutes. I really think the effect upon the judge was distressing, for he never became pancake hungry again during my residence in the neighborhood, and it was very fortunate for him that he did not. We silently, but by mutual consent, dropped the subject.

In nearly all other matters of cookery the judge displayed decided talent. I admired the rolling-pin he used when making biscuit, and have sketched it for the benefit of the reader. In its season we had much fruit on our table, and at the end of six months' baching we found the expense was $1.66 per week. Now, 83 cents each per week is not slow for economy. The judge was looking out all the time for the interests of the heirs of the estate; and as long as he and I were satisfied with the board the heirs ought to be; but, ten chances to one, the judge will, in the end, get no thanks, but kicks instead.

CHAPARRAL THICKET.

Our honey season started in somewhat slow, and with some elements of discouragement. The early fruit-bloom did not yield honey, neither did the manzanita, which is quite abundant here. The mountains are also covered with chaparral, which, I am told, yields some honey, but it failed this time. Chaparral is a dense growth of bushes on the mountain-side, and they are so interlocked that it is next to impossible for a man to find a passage through it. It has a small white blossom, but I doubt whether it yields much honey at any time. While my nearest neighbor rounded up his herd of cattle, sheep, and his family, for a photo, I found that I had in the background a very good view of a mountain covered with this growth, and it will give your readers an idea of the appearance of chaparral.

Owing to rain and cool weather, several hundred pounds of old honey was fed to the bees. As this was mostly comb honey in large 12-pound boxes the task was an easy one, except that, every time honey was placed over the brood-nest, the back door and top of those Harbison hives had to be retucked with paper or rags.

It was well into June before the bees commenced to gather honey, and this came from the first crop of alfalfa. While in Southern California five or six crops are harvested per annum, and always cut just as it comes to the blooming-point, here there are but two crops; and, fortunately for the bee-keeper, it is allowed to stand two weeks in bloom. The first crop yields more honey than the second, and with less admixture of honey from other sources. Our honey from this first crop was almost as white as sage honey, and of fine flavor. The second yield, in August, was less in quantity, and darker in quality from being mixed with honey from blue-curl, locally known as tar-weed, and known in Southern California as flea-weed or vinegar-weed. It secretes a dark honey having a strong disagreeable flavor. There were acres of it on all waste places in the valley. The bees commenced to work upon it just as soon as the first crop of alfalfa had been harvested.

When I saw indications of the coming of the second yield of honey from alfalfa I extracted all "tarweed" honey; and, although it was nearly all unsealed, it was ripe enough to commence to granulate in the tank in a few days.

The removal of over a ton of this dark honey enabled me to secure a better grade of honey from the second crop of alfalfa.

The only admixture thereafter was a small amount of tar-weed honey.

Sweet clover was also a small factor in our honey production. The late Mr. Levering went east a few years ago, and upon his return be brought with him the seeds of sweet clover, motherwort, catnip, and other plants, for introduction here. The sweet clover took hold of the soil real well here, and, after a few years of trial, Mr. Levering wished he hadn't done it, and tried to eradicate it; but it was too late, for it is scattered more or less through Scott Valley, and is considered by some an obnoxious weed. From my observation the bees work upon it industriously. Mr. Levering was passionately fond of flowers, and his little cabin was surrounded with them in great variety, and his place was noted for its beauty.

The season was an extremely poor one for comb honey. If we had depended upon that for our income we should have had to economize still further in the household expenses.

The late Mr. Levering had progressed far enough to commence the use of the 4¼ x 4¼ sections. The upper surface of a Harbison hive is not easily fitted with these sections, and Mr. L. put them in one at a time, tiered up three in height, with no crate to hold them.

Quite a number of hives had these sections still in place all empty, but glued tight. Well, now, you better believe it was a job to get them out without breaking them; and if Mr. L. could do it when they were filled with honey, and not break them, he had an exemplary patience; and if he could handle those sections one by one, and get them out of ten hives per day, he was a rapid workman.

To work the sections without too much strain on my nervous system, the judge and I devised a crate to hold 18 sections, and put on 100 of them; and at least 900 of the sections in those crates were filled with drawn combs. We found quite a difference in the workableness of drawn combs. If the bees had drawn out a comb and left it with no honey in it, there was a hard ribbed edge to every cell, that they were loath to use; while if the comb had been filled with honey, and extracted, or if it had been recently eaten out by the bees in the process of feeding, they were more liable to get to work upon it. In the former case the ribbed edge needed to be trimmed down or leveled; but with all of our drawn combs we were barely rewarded with more than 800 lbs. of honey in sections.

The new combs that were fitted into our extracting-frames were neglected in the same way by the bees. Two new combs in a super, with five old ones, would in many instances be entirely neglected, while the old combs would be filled with honey. I have seen this same preference shown by bees in Southern California. I attribute it to the fact that an old comb is a warmer surface to work upon. It retains more or less heat from the brood-chamber, while the new comb retains none. This preference is also shown more where cool nights prevail, and where the queen is not prolific enough to fill the hive cram full of bees Several conditions seem favorable for such a state of things, and we had them all in full force in this apiary during the past season.

It seemed that, while the judge and I were striving to impress the heirs of the estate with the importance of bee culture, and trying to get a large yield of honey and a good amount of cash, the bees resorted to many ways to baffle us.

HEADS OF GRAIN FROM DIFFERENT FIELDS

HONEY IN PLAIN SECTIONS PUT ALL OTHERS IN THE SHADE AT THE MARLETTE FAIR; DEEP ENTRANCES.

I tried the plain sections and fence this season. I got my supplies from Mr. Hunt, Bell Branch. I like them very much. I shall use more next season. The honey looks much nicer in plain sections. My honey put all the others in the shade at the Marlette fair. I I think I should like the fence a little lower than the sections. I noticed this fall the bees glued the space full so you could not look into the super. I think I shall cut mine down ¼ inch. Would it not be better to have the slats a little further apart so the bees can pass through? I tried the S fence by holding it at the entrance when the bees were at work, but not a bee went through, either coming in or going out. I think the deep entrance is all right. I made mine this year ⅞. My old hives were ⅜; and as soon as it got pretty hot the bees hung out quite badly. I then put strips ⅜ inch under the hive (sides and back), and the bees went to work, and bothered but little after that.

I like GLEANINGS very much in all its different parts. I should not like to do without it. WM. STILES.

Burnside, Mich., Dec. 5.

[You will see in our Dec. 15th issue that the fences for 1899 will be ¼ inch narrower at the top and bottom, and that the slats themselves will be a little further apart than last year. It is true that, in some cases, the bees filled the spaces above the cleats on the last-year fence with glue. While there are only occasional reports of such propolizing we thought best to make a change — make cleats come flush with the tops of the slats.—ED.]

MY APICULTURAL CREED; GOLDENROD A FAILURE; LARGE HIVES; T SUPERS; TEN-CENT COMB HONEY, ETC.

The honey crop was a perfect failure here this season. A sixty-days' drouth, with the exception of three local showers during May and June, did it up.

I believe goldenrod has always received more praise than it ever deserved. It is very abundant here, but it is seldom visited by bees. During ten years I have seen bees working on it but four times.

I believe in Dadant's arguments for large hives. My hives are nine-frame Langstroth.

I am a believer in Dr. Miller's T tins and section cases. I don't believe they will ever be excelled.

I believe your fence will be a success with men who make a living by bee-keeping; but with a majority it will never be used.

I am a small bee-keeper. I follow, never lead. It is a side business with me; but if I were going to make any change in the size of sections I would make five tiers fill a L. section case, say 3½ x 5, and just wide enough so each section, when well filled, would hold one dime's worth of honey at the rate of 12½ cents a pound. My reasons are these: A dime is a standard coin, easy to make change, easy to sell. Almost any person can raise a dime who wants honey; and 12½ cents is as near a standard price as any thing can be. When I was a small boy we lived near Wooster. My mother bought honey of a neighbor at 12½ cents a pound, and I went and took it home. She also got some honey from the same neighbor at $1.00 a gallon. It was candied, the first I ever saw. These things occurred in 1832. Taking prices then and now, and for ten years or more, I think 12½ cents for honey is as near a standard price as a dime is a coin; and I believe such a section would meet with general favor; and, to use a nurseryman's language, when a fine fruit is brought to notice, it "would fill a long-felt want."

AN EXCELLENT METHOD FOR STOPPING ROBBING.

I will give you my plan of stopping robbing. Whenever one hive commences robbing I take the weak hive, the one that is being robbed, and set it in some other place. I then take one of my strongest hives and place it where the robbed one was. I do this in the evening. Next morning early the robbers go to work. The robbers always commence business early. But they meet a powerful resistance, and, after fighting awhile, give it up. If one powerful hive did not whip them out I would give them another. But I never had to give a second one. This is original with me. It has always worked successfully.

You always want to know what your readers think of your journal. Well, my opinion is you can't make any improvement.

JOHN BARFORD.

Cross Keys, Ga., Dec. 13.

SWEET CLOVER.

I have always thought that one writing on any subject ought to have a practical knowledge of the subject. I am more confirmed in this since reading the letter written by L. W. Sawyer (see p. 893, Dec. 1st issue). He certainly doesn't know what he is talking about. One would naturally suppose, by reading his letter, that he was a large land-owner with cattle upon a thousand hills, and that sweet clover had become a great nuisance to him, when the facts of the case are he doesn't own a foot of land, but rents just one acre upon which he raises a few beans and potatoes, and has about 40 colonies of bees. There is no sweet clover in this country, to speak of. I will agree to wheel all there is within ten miles of Mr. Sawyer's lot, on a Daisy wheelbarrow, and I don't think it would make a load. Now, Mr. Sawyer is generally considered an honest man and a good citizen; and what in the world ever made him slop over in that kind of a way I don't know. Sweet clover may be a bad thing, and it may not. I am just like Dr. Miller in one respect—I don't know.

REPAIRING BRUISED COMB HONEY.

I have never seen any thing in GLEANINGS in regard to soldering broken sections, and I just wondered if any one else had ever got on to it. When I am casing up honey, if I punch a hole in a section it is ruined as first-class honey, no matter how nice the section in other respects. One day I was working near a hot stove, and broke an exceptionally nice section. I picked up a case-knife and held it on the stove until it was quite hot, then smeared it over the hole, when, presto! the hole was closed good and tight. It left a thin covering of wax over the honey that made it as good as ever. Since then I have saved a good many dollars' worth of honey from going into the third-rate lot. If the hole is very large I drop on a small piece of white comb from an unfinished section. Try it. E. A. EMMONS.

Tampico, Ill., Dec. 20.

VENTILATION AFFORDED BY FENCES.

I don't see any aptness in R. L. Taylor's illustration of a wicker chair in a room. It doesn't fit the case. If he wants it put in epigram, here is one that is more of a correct simile: Which will be better ventilated, a box or a crate standing in a room with a window or door open? and if the room be filled with boxes and crates, which are better ventilated? Moreover, ventilation is sidewise as well as vertical, even naturally, to say nothing of the currents caused by the bees fanning. Can not a room be ventilated by opening a door in the side nearly as well as by opening one in the floor or ceiling? Hence I agree with you, and not with Dr. Miller's Straw on p. 825, Nov. 15.

Monterey, Cal. A. NORTON.

HONEY-LEAFLETS NOT A SUCCESS FOR SELLING HONEY.

In GLEANINGS for Nov 15 you ask if the honey-leaflets have been a success in selling honey. Not with me. I don't think one in ten reads them. I have never thought the name was suitable—sounds too dry. How would "All about Honey" do? I am not sure they have ever sold a pound of honey for me. I have distributed several hundred.

Clinton, Ill. HENRY WILSON.

[Let's hear from others. This makes the second unfavorable report.—ED.]

HONEY SOAKING IN CYPRESS BARRELS NOT SERIOUS.

In regard to cypress barrels, such as I use are of best seasoned cypress. When dry (empty) a barrel will weigh 48 to 51 lbs., and half-barrels 27 to 29 lbs When filled with honey for several weeks, and then emptied and placed so as to drain thoroughly, a barrel will gain by absorption from 5 to 6 lbs., and half-barrels 3 lbs. I have the best of Fairbanks' scales, and have tested barrels and half-barrels again and again. Half-barrels (cypress) are far preferable to any other packages for shipping honey.

Greenville, Miss. O. W. BLANTON.

THE DANZENBAKER HIVE.

I have used two of the Danz. hives during the past season, and, comparing the results with the Dovetailed hives, the Danz. makes the better showing of results. With my short experience during the season, which has been poor for honey, I am very favorably impressed with this hive, and would inquire if you anticipate making any change in the construction for 1899. J. K. GOODRICH.

Waterbury, Conn., Oct. 24.

GOOD NEWS FROM CALIFORNIA.

Southern California has at length had a rain. We did not get much here in Los Angeles, but the interior had quite a downpour; and with the rain came the unusual phenomenon of snow. Several inches fell in Riverside and adjacent country. The bee-keepers and ranchers are accordingly much encouraged. We are hoping for a continuation of these favors. J. H. MARTIN.

Shermanton, Cal., Dec. 10.

A PLEA FOR THE FARMER BEE-KEEPER.

I see quite a good deal in the bee-journals about farmer bee-keepers, and about their selling black and inferior honey at low prices, and spoiling the market for the expert bee-keepers I see on page 879 Mr. Boardman has something to say about this. Now I want to know why the farmer can get any darker honey than the expert bee-keeper. Do the experts stand at the hive and clean off the bees' feet before they go in? or do they keep a mat at each hive for the bees to clean their own feet on? or do they train them to gather the white honey and leave the dark out?

In regard to farmers selling their honey cheaper, it is not so here, for farmers take their honey to the stores and trade it for other goods, and get the same as they retail it out at, and that is 15 cts. per pound. I am a farmer bee keeper, but I always get the latest style of hive, sections, and fences.

Wakefield, Neb., Dec. 15. R. Chinn.

[You would not be classed as one of the "farmer bee-keepers" complained of. It is those who use old box hives, and sell either chunk honey or honey put up in old dirty last-year sections. In a word, it is the don't-care slovenly fellows, farmers or any one else, that demoralize the markets. Because one is a farmer it does not follow that he can not produce first-class honey. Why, I should say nine-tenths of our best bee-keepers are also farmers.—Ed.]

DEAD BROOD OR FOUL BROOD.

I had eight or ten hives containing dead brood the past season. Some of them dwindled to nothing. I united some with other colonies. Some of them had no queen. What you say in Gleanings, page 803, will explain that; but some had queens. I took one of the queens and introduced her to another colony that was queenless, and they raised healthy brood. Is there any danger of this disease becoming serious? Is it contagious?

There have been other cases of it in this part of the country. What is the proper thing to do with diseased colonies? I have had fears that it was foul brood; but it does not quite answer the description. The brood dies, turns brown, and dries up before being sealed. Some dies after being sealed.

Ohl, Pa., Nov. 7. M. Gumbert.

[What you describe I take to be dead brood. This malady is nothing serious. Some seasons it will appear, and then again it will not show itself for several seasons. Comparatively little of the brood dies, and usually the malady will disappear of itself. It greatly resembles foul brood, and the only distinct differences are, first, it is not contagious; and, second, very little of the brood dies—only here and there scattering cells.—Ed.]

THE IDEAL SUPER; SQUARE SECTIONS; WIDTH OF CLEATS OF FENCES.

I have been interested in bees for seven years, and have been a reader of Gleanings almost as long. I have used tall sections three seasons, and have no use for the square ones any more. I was much interested in reading Dr. Miller's article in Gleanings for May 15, on the Ideal super, and also in Mr. W. C. Gathright's article and Dr. Miller's reply in the Nov. 1st number. I have used a few Ideal supers this past season, and think they are the best and simplest supers in use. I have used section-holders six seasons, and will discard them as soon as possible. A super like the Ideal, with slats, can be filled and emptied much quicker than one with section-holders. The Ideal can be emptied the same as Dr. Miller empties his T supers, illustrated in the A B C of Bee Culture. I think if the editor will try filling a few Ideal supers and a few with section-holders he will be convinced that slats are ahead of section-holders.

There were a few faults in the construction of the Ideal super, fence, and sections. The five sections in a row are about 1/9 inch shorter than the fence. I think the row of sections should be a trifle longer than the fence so the sections could be tightened endwise with a thin strip between the section ends and the super end. Would it not be better to have the tin strips that the slats rest on made wider, and folded back 3/8 inch like this? The way they are now made, they sag between the nails. Don't you think the cleats on the fence are too wide? I filled the sections full of foundation, but the honey was rounded off at the edges opposite the cleats, and the row of cells next the wood left unsealed. I want my honey filled like Mr. Danzenbaker's, and the cleats on his fence are not as wide as the Ideal fence-cleats. Don't you think it would be better to have the cleats long enough only to touch the top and bottom slats about ⅛ inch? I admire the honey that Mr. Danzenbaker and Mr. Aspinwall produce in plain sections, and hope the Ideal fence will be so made as to give like results.

Lamoni, Iowa. W. H. Dancer.

[Most of your questions are answered in our Dec. 15th issue, and I would therefore refer you to that number. As to a folded tin for section-holder bottoms, that would be a doubtful improvement, as it would take up too much room. If we did any thing we would make the tin heavier.—Ed.]

ABSCONDING SWARMS—WHOSE PROPERTY?

If an apiarist follow an absconding swarm of bees, and they settle on another party's property, can the apiarist claim his bees by law, if he has seen them traveling there?

If a person finds a swarm of bees settled (no one knowing where they came from) on another party's property, whose are they by law, in case both parties claim them?

Red River, O. J. B. Cool.

[Bees belong to the one who first discovers them, no matter where they came from nor on whose tree or land they may be on; but the finder of the bees can not go and take them against the wish of the owner of the land on which they may be. As to how they would then settle their difficulty, I am not lawyer enough to say; but if I were in that fix I would submit to arbitration rather than have any row.—Ed.]

EDITORIAL

BY

E. R. ROOT

PROSPECTS look a little discouraging after all, in California, in spite of what is said on page 18. A later note from Mr. Martin says there was no rain last year, and but little up to date this year, comparatively. But it is an old adage with the West Coasters that they never have two dry seasons in succession, so there is still hope.

FRIEND Dadant, in his article in this issue, last paragraph, asks some pertinent questions. I do not know that I care to have them answered in GLEANINGS, as we really have not space for social and political discussions ; but one can not help smiling when he thinks of the various foibles that cling to the twentieth-century civilization.

IN our last issue, in reference to the fence question I spoke of Mr. Holtermann's having borrowed certain cuts from our catalog and using the same in his journal as a boomerang on the Root Co. After the matter had gone to press, and too late to make the change, I discovered my error. The cuts were bought outright, and I cheerfully make the correction as simple justice to Mr. Holtermann.

THE prospects in the supply line look almost as flattering as last year; indeed, our new engine, that we supposed to be ample for our work, is now pretty well loaded down. We shall have to speed it up and increase the boiler capacity in order to be able to handle our factory. We shall be taking, during the next three months, nearly 300 horse power, and nine-tenths of all our work relates to bee-keeping.

THERE seems to be a demand for a slatted separator—a separator made of slats the same as the fence, but without cross-cleats, so that it can be used with old-style sections. We shall be able to offer these to our customers, as well as the fences. While they will, no doubt, be an improvement over the plain solid separator, they probably will not give the results secured by the fence and plain section in combination.

INVENTING NEW HIVES.

IN the *Revue Internationale* for November, Mr. Ulr. Gubler, a distinguished bee-keeper of Europe, has the following to say in his "Advice to Beginners :"

> The bee-keeper who knows how to handle tools likes to try to make his own hives, and therein we have only words of encouragement. But let him confine himself to systems approved by the experience of our masters. Refrain from a tendency to make new things, to introduce pretended improvements, before knowing thoroughly the nature of the bee and its needs. The hives that we possess are the result of the studies, the experiments, and the discoveries of a great number of bee-keepers and experts of all lands: and to desire to make new is simply to render oneself liable to pay dearly for the experiments that others have made before us.

JOURNALISTIC COURTESY.

IN the last *Am. Bee Journal* Prof. Cook refers to the time in the early 60's when even the fair name of Langstroth was traduced, and bee-periodicals were casting serious reflections upon each other. He tells how, in these later years, this thing has disappeared ; and although he does not refer particularly to the *present* time, I am rather of the opinion that the article would not have been written except for some things that have appeared in our late current literature.

If the bee-journals of to-day are showing a tendency to degenerate into the ways of old, let them mend their ways at once. I always believe in fair honest criticism, even to the extent of plain talk when the exigencies call for it ; but this latter should always be used sparingly.

Mr. York, of the *Am. Bee Journal*, in commenting editorially on Prof. Cook's article, says : "We think all apiarian editors, not excepting ourselves, need to devote a little more thought to this matter than, apparently, has been given to it in the past few months." I will subscribe to the statement. I will do all I can, so far as our publication is concerned, in making 1899 a new year. Nay, further : I am not ashamed to make reparation if I have wronged a brother.

THE ASPINWALL MACHINE SECTION-CLEANER.

IN our last issue I spoke of the fact that we were considering the manufacture and sale of a machine section-cleaner. The fact that it was invented by L. A. Aspinwall, that Jackson bee-keeper who produces such fine comb honey—the man who is the inventor of several useful agricultural machines, also inventor of the Aspinwall hive, separator, and super—is evidence sufficient, to my mind at least, that he has a machine that is a success. Here is what Mr. Aspinwall says of it in the *Review :*

> Referring to section-cleaners and section-cleaning, the plain sections offer obvious advantages in favor of their adoption. However, the wonderful success of my present machine is certainly greater than I first anticipated, it being adapted not only to plain but to old-style sections. The speed attainable in cleaning plain sections is far greater than I first supposed could possibly be. The highest speed I have thus far attained was at the rate of 192 sections per hour, being upward of 2000 per day. The test of speed, however, was upon a few, and possibly with a larger number I should have failed to maintain that record. Still, I am by no means an expert as yet; but I believe that, in the hands of such, 100 sections could be cleaned per hour.

Mr. Aspinwall, I believe, has it nearly perfected. As soon as it is he is to send us a machine, and then we will see what we can do about putting it on the market, if all goes well.

NUMBER OF COLONIES AT THE HOME OF THE HONEY-BEES ; WHY WE WINTER OUTDOORS.

WE now have in the apiary, safely put away in winter quarters, 252 colonies. A part of this number is made up of colonies from the out-apiary, which this year were brought home to avoid the depredations of thieves.

We winter wholly outdoors in double-walled chaff-packed hives, and our percentage of loss for the last 15 or 16 years usually runs about three per cent. Not only that, we have strong vigorous colonies in the spring. Our locality is too mild at times to warrant the greatest success, for us at least, with indoor or cellar wintering. After trying the two methods side by side we found the outdoor plan gave us better results.

FIVE-GALLON SQUARE CANS; A GOOD ARGUMENT FOR THEIR USE.

ON page 886 I had something to say about barrels and square cans. Referring to what was said about both in the bee-journals, Mr. Leahy, in the last issue of the *Progressive Bee-keeper*, says:

> We used to buy in barrels and kegs, but with us the loss of honey by use of barrels would more than pay for cans; in fact, we were often compelled to empty contents of barrels into cans after we received the shipment. We have no home consumers who will take a barrel of honey, nor yet a half-barrel; but we have many who buy a 5-gallon can from us every year. A can can be set in a warm place, and the honey be kept liquid, while a barrel or a keg can not. Five cents will furnish a nice 2-inch honey-gate, that you can give to a customer to draw the honey from a can with, while it would take 25 or 50c for a faucet with which to draw the honey from a barrel or keg. Our experience has been that panel cans will not crack while being roughly handled; and as they cost no more than cans with straight sides, we advise the use of cans, and panel cans at that. If you have any honey in barrels to sell, please don't let us know any thing about it; but we want some good alfalfa honey in cans.

It is true that a five-gallon can is just right for family size. Whenever we get some extra choice extracted honey, thick in body, fine in flavor, I just take a whole can of it "over home." I always like to treat my bee-keeping visitors to the best honey there is to be had in the United States; and usually (not always) at our house we have something in that line fit to set before a king.

One of these 60-lb. square cans can be set in the house anywhere, next to the stove or down cellar; but it would not do to set a *keg* of honey in a *hot* place. Say, brethren, would it not be a good idea for us to talk about a family can of honey, just as we talk about a family flour-barrel? There are hundreds, yes, thousands, of families that lay in a stock of eight or ten gallons of maple syrup, and why not honey in equal quantities?

COGGSHALL AND HIS OUT-APIARY HELP; BICYCLES FOR OUT-YARD WORK.

I HAVE already spoken of my visit to Mr. Coggshall about the middle of last October. At that time Mr. C. gave me a photo showing him and his men preparing to go to their out-yard. This I have since had engraved, and show on page 10.

The view was taken just in front of Mr. Coggshall's beautiful residence. Mr. C. and one of his sons are in the wagon. The others stand by their bicycles ready to start. When they go to their out-yards all the helpers go together, some in the wagon carrying empty supers, etc., and the rest going on bicycles. The wheels are used because they enable the men to go in separate groups from one yard to another. They usually go in pairs to each yard. One pair may precede the rest, get things ready and hives opened up, when they will be joined by one or two more.

You see bicycles enable the men to go and come as they please; and when one or more can't work to advantage at one yard they mount their wheels and go to another.

Wheels are an advantage over horses in another way: bees can't scare or sting them, and at Coggshall's yards this is quite an item.

At each out-yard there are smokers, veils, extractors, kegs, and every thing else necessary to carry on the work of an extracting apiary; so all that is necessary for the boys to do, usually, is to mount their wheels and ride to the several yards.

Niver tells a story about Harry Howe that I can't help repeating here. As nearly as I can remember, the facts are these:

Mr. Niver went over to call on Coggshall, on the first of September. Harry was helping to thrash. Said Mr. Niver to Harry:

"Busy nowadays?"

"No, not very," said Harry.

"What have you been doing?"

"Why," said Harry, "this being the first of September I had to go hunting; walked seven or eight miles; shot several squirrels, and got back in time for dinner. After dinner Lamar wanted me to go to one of the out-yards and take off 200 supers. This I did, and got back about four o'clock, going some fourteen or fifteen miles. As I had a little time left I turned in and helped the thrashers."

"So you haven't been very busy, eh? Let's see: You walked seven or eight miles, and brought home a string of squirrels; wheeled some fifteen miles, took off 200 supers, got back home, and then helped thrash!"

"That's Harry all over," said Niver. "Yes, and for that matter that is about the way Coggshall and all his men work; and then if you ask them if they are busy they simply say, 'Oh! not very.'"

At the time I visited Mr. Coggshall he was husking corn. I asked him what he was doing that for.

"Well," said he, "there was nothing particularly to do, and I thought I might as well husk as do nothing."

"But," said I, "a man who works as hard as you do, at steam-engine pace, ought to have, it seems to me, a little breathing-spell once in a while."

"Breathing-spell! Why, to loaf," said Mr. Coggshall, "would kill me quicker than to work."

SNOW AROUND THE ENTRANCES OF HIVES.

VERY frequently lately the question has been asked whether snow should be swept away from the entrances of hives, especially when it is drifted around about the hives as it has been in most northern localities within the last two or three weeks. I have been in the habit of giving the advice to let the hives alone; that, unless the snow is drifted very badly, there is no danger of smothering the bees, for the snow, if it is light, is full of air; and as to protection, nothing could be better.

Said one of our neighbor bee-keepers, "There is nothing I like to see better than my hives buried up in snow, because then I know they are going to winter well."

But the snow is gone, and has been for a week. We had one of those old-fashioned "January thaws" in December, and since that time no questions have been asked about sweeping away snow.

DOOLITTLE ON ADULTERATION.

BROTHER DOOLITTLE, in the *Progressive Bee-keeper*, thinks there is more noise about adulteration than the facts will warrant; that there is less adulteration now than formerly. If Bro. D. will go over the markets as some of us have done, especially in the large cities, I think he will have reason to change his mind. It is true, honey has come down in price, and so also has glucose, and very nearly in proportion. If friend D. will take the pains to get the price on glucose by the carload he will find that there is a good margin for adulterating yet. If there were not, there would not be so much of it.

I dislike to talk about adulteration as much as any one; but if we bee-keepers try to cover up the fact, or try to convince ourselves that it is not as bad as some folks think, the glucose-mixers will take new courage. All they want is *to be let alone*. In that respect they are like the saloon-keeper, whose business Bro. Doolittle and I mutually despise.

DANZENBAKER HONEY NOT OVERDRAWN.

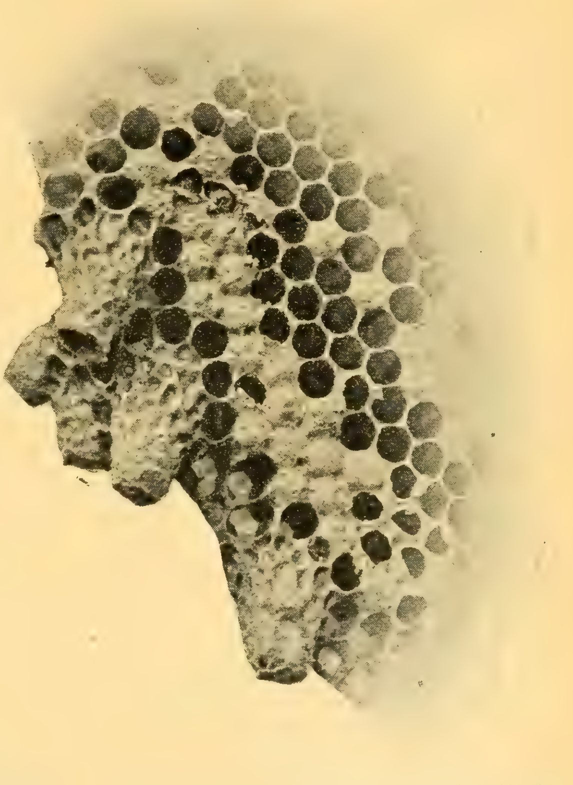
IN our last issue I spoke of the fact of there having been some criticism to the effect that the illustrations in the *Review* and GLEANINGS, showing honey in plain sections, were hardly fair.

I have just received a letter from Mr. J. E. Crane, of Middlebury, Vt., who, after leaving Medina, went to Washington, and there visited Mr. Francis Danzenbaker. After looking over his honey he says: "I do not think that the illustrations of his honey have been overdrawn." I thought so all along myself, but I did not venture the statement, as some, at least, would think I was a prejudiced authority. Mr. W. Z. Hutchinson, a man who has been admired for his fairness, has spoken in the highest terms of Mr. Danzenbaker's honey; and if there is any man in all beedom who knows how to produce a gilt-edged article, it is Mr. Danzenbaker. I have seen but very little of the honey produced by L. A. Aspinwall, of Jackson, Mich.; but from what I have heard of it, I should say it is fully equal to Mr. Danzenbaker's.

It seems to me, friends, we should throw aside prejudice, and learn whether there is any thing in Danzenbaker's and Aspinwall's systems of honey-production. I am well aware that not *all* fence honey by considerable is equal to the specimens shown in GLEANINGS, from Messrs. Danzenbaker and Aspinwall. Yes, some of it is at least no better than honey produced in old-style sections; but this difference, I think, is due wholly to the construction of the separator or fence.

QUEEN-CELLS; NATURE AS IT IS.

SOME little time ago Bro. Hutchinson sent me a photo he had taken in miniature, representing some queen-cells. The thought occurred to me that this might be enlarged to life size. Accordingly I sent it to our engravers, and asked them to enlarge it to show five cells to the inch. The results were so satisfactory that I immediately sent a proof to Bro. Hutchinson, saying I thought he had a prior right to it—that I would not use it till he had used it in his journal. In due time it found its way into the columns of the *Review;* and now I take pleasure in presenting what I call a work of art in photography and half-tone —a work of art because it is nature itself.



Many times beginners have had a wrong notion as to what constitutes a queen-cell; but here is an illustration that will show exactly what it is like.

Our Roll of Honor.

Symposium of the Veterans, or Those who have Taken Gleanings for 25 Years, More or Less.

In our last issue we promised a little present to the veterans. Well, it hardly seems worth while to draw the line too sharply at just 25 years. Quite a number have taken it for 20 years, some 23, and some 24; and in order to do justice to all, we have decided to send one number of GLEANINGS free of charge to any one for every year he has taken and read it in the past. Thus, you see those who have taken GLEANINGS for 20 years will have 20 issues free, those of 24 years a whole year free, and so on.

Several mention the time when GLEANINGS was printed by windmill power. "Vol. I. No. 1" is dated Jan. 1, 1873; but it was first taken from the press, as I explained in our previous issue, Dec. 6, 1872, and the printing was done at the office of the Medina *Gazette* for the first year. But Jan. 1, 1874, however, we had a press of our own, and the first issue for the year was printed on this press, your humble servant running it by foot power when the wind did not blow; but when the wind did blow I had a mechanical arrangement so that a large windmill (put up for cutting up stuff for hives, etc.) would follow up in the rear, and finally relieve me from working the treadle when there was wind enough. A good deal of the time the printing was done partly by wind power and partly by foot power—that is, the two pulled together. I remember one night when we were late I made preparation to run the press all night. As there was not a breath of wind there was no way but to tread it out. About ten o'clock, however, a breeze sprang up, the press kept going faster and faster; but as the wind came up gradually I learned to feed as the speed increased; and under the inspiration of seeing my two hobbies at the time work together (the printing-press and the windmill), I put in the sheets so rapidly that I was through and at home not much after midnight. Of course, there was some grumbling among the subscribers because some of the sheets were printed crooked; but when I explained the matter they were very kind and forbearing, and let me down easy. After that it began to be a kind of standing joke that any crookedness (either in the journal or bee-hives) was to be attributed to the irregularity of the *windmill*. Before Vol. III. was out, however, the wind proved to be too uncertain for the hive trade as well as for our enlarged circulation, and a 4½-horse-power Bookwalter engine was put in to supplement our power when the wind did not blow; and for a while both the windmill and the engine pulled together quite amicably. Now, then, let us hear from the veterans:

GLEANINGS has come to my home continuously since the first number. I have kept the numbers. Honey-producing has been my principal pursuit all these years. As might be expected, the enthusiasm of the earlier years has materially abated. An interest in intensive farming, fostered by GLEANINGS, is my present hobby. T. P. ANDREWS.
Farina, Ill., Dec. 21.

I have taken GLEANINGS for over 25 years. I wish you a merry Christmas. D. H. TWEEDY.
Dillonvale, Ohio, Dec. 23.

I am unable to fix the exact date of my first subscription to GLEANINGS, but I know that I have the 26 volumes complete, *not one number missing*.
E. Springfield, O., Dec. 23. R. M. REYNOLDS.

I commenced bee-keeping 21 years ago last fall, and have been a constant reader of GLEANINGS during that time, and am pleased to say that I am a paid-up subscriber. I can say that, for these 21 years, I have read GLEANINGS with much pleasure and profit. Wishing it a long life and a wide circulation I am
Yours respectfully,
Battle Creek, Mich., Dec. 21. W. S. WRIGHT.

As you request in last GLEANINGS, I will say I commenced to keep bees Jan. 5, 1872. I think about two years after that I heard of GLEANINGS, and have been a subscriber ever since, and have all the numbers ever printed, having sent for all back numbers. I have every one preserved up to present time without a missing number; also the *American Bee Journal* for the same time. I shall be 71 years old next June.
Newburgh, N. Y., Dec. 22. MARCUS D. DU BOIS.

I remember very well when, 26 years ago, I received No. 1 of GLEANINGS. I have every number of the paper from that day to this, and, still better, my subscription for 1899 is paid. Age tells, so I can not get around among the bees now as I did 25 years ago; but my two little boys are a very great help to me in the management of my 65 colonies. WM. WILSON.
Bardstown, Ky., Dec. 23.

I have taken GLEANINGS from the time you printed it by wind power. I got interested in apiarian pursuits over forty years ago by reading Langstroth's book. I have had as many as 225 colonies. In the summer of 1883 I harvested 12,000 lbs. of honey. I am still in the business. I could not do without GLEANINGS. Long may it live, and eternity only will tell its influence for good. GEORGE BRIGGS.
New Sharon, Ia., Dec. 22.

You may remember "Novice" and the *A. B. J.* of Washington, D. C., and the cistern that came so near being filled with honey, and the large queen ("Giantess") that was followed to the woods, and a certain jeweler who fell in love with bees. Well, I am one who has read after him more than 25 years, and am yet reading GLEANINGS. I hope you may be more and more useful to the end, and receive a crown of life. J. B. DINES.
Libertyville, Mo., Dec. 22.

I am one of the number that have taken GLEANINGS for 25 years or more. I received the first number that you printed, and have received a copy of every number that has been printed since. I have never missed a number in the 26 years. I have a likeness of you with Blue Eyes on your lap I have been at your place, and seen you and Blue Eyes; also your wife and your brick house, and hope to see you again—if not in this world, in the world to come. A. J. HOOVER.
Dorranceton, Pa., Dec. 22.

I am an "old timer." I used to read Novice's writing in *American Bee Journal* when published by Samuel Wagner, in Washington, D. C., and have never missed an issue since GLEANINGS was first published. I have had considerable dealings with the publisher, and have no fault to find. I am a native of Ohio—was born in Brownhelm, Lorain Co.; moved from near Oberlin to this county in 1852, and settled on the farm that I now own and occupy. I have made a success of bee-keeping, take it all together.
Farley, Iowa, Dec. 23. JAMES SCOTT.

I have watched your progress ever since you commenced writing for the *American Bee Journal*, for I have taken that journal from No. 1 until the present, and I have also taken GLEANINGS from its beginning until now. In fact, we feel pretty well acquainted with you in many respects. Most of this time I have been in New Hampshire, but for four years past have been sojourning in this mountainous region of Western North Carolina.

I first became a bee-keeper the day I was 18 years old. I came here to escape the rigors of our New England winters, and find I can be much more comfortable. I have had something to do with bees here, but am not largely interested in them.

If in your travels you can find time to call here you will be warmly welcomed by several of your custom-

ers, including the subscriber. I often think of the pleasant time I spent at your place a few years ago.
Hendersonville, N. C., Dec. 21. J. L. HUBBARD.

In last GLEANINGS you invite the oldest subscribers to stand up and be counted. Well, I have had a copy of every page of GLEANINGS that was ever issued; and, if memory serves me well, I was a deeply interested reader of "Novice" in good old Uncle Samuel Wagner's *American Bee Journal* for some time before GLEANINGS was born. I have followed you with the deepest interest through all your bee career, and, in a small way, have been a patron and correspondent. Prosperity always excepted, very many of my experiences have been notably like your own, even to my "Giantess," the largest and most beautiful queen I ever saw. Do you remember yours? I have also been for forty years a Congregationalist, and many years deacon and Sunday-school superintendent, and have always read Our Homes with much interest.
Excelsior, Minn., Dec. 23. J. W. MURRAY.

I have the first year's volume now as you sent it, bound with metal clasps. I have piles of the back volumes and some "Juvenile" GLEANINGS. I have many things about my premises that remind me of Medina and the Root family—among them a large extractor, the insides and gearing from you; also a saw-table and appurtenances, and many other minor conveniences. Bee-keeping has always been a subordinate branch of my industries, but GLEANINGS has always had its interest and charm for me, and none of its departments have been skipped. I have that friendly feeling and love for the whole Root family that any one who has read GLEANINGS so long *must* have. The Home Papers and the gardening notes have all reached me. I heartily congratulate you on the full-grown, healthy, and clean GLEANINGS which is now before me, and I trust it may continue to come as regularly into my home in the future as in the past.
Burlington, Vt., Dec. 22. A. A. LEWIS.

My time dates even back of 25 years to the little leaflet printed quarterly by the windmill—yes, and back into the old *American Bee Journal*, 1869 to '73, have I read with so much pleasure and interest from the pen of our old and worthy friend Novice. Now that you ask for responses from your earliest and continued subscribers, it gives me great pleasure to be enrolled as one of them. Well do I remember the changes in appliances and improvements wrought out in those 25 years. I wish also to mention my appreciation of the Home Papers, tending to elevate and bring us to a higher plain; High-pressure Gardening, Notes of Travel, the Rambler, and poor old Father Merrybanks, all of which must be appreciated by your many subscribers.

What a reunion these 25 year subscribers would make! and what a bee convention! How I should like to attend, and hear the very friendly and interesting discussion of changes during the past quarter century! And now, friend Root, may you be spared for many more years; and may GLEANINGS continue to be our half-monthly visitor in the future as in the past. F. H. CYRENIUS.
Oswego, N. Y., Dec. 20.

In 1871 or '2 I had a very severe attack of bee fever, and gathered and read and studied all in the line of apiculture that I could get, and spent many sleepless "though pleasant" hours after I retired at night, thinking and studying of the bee and its nature. Through the kindness of some one the first issue of GLEANINGS was placed in my hands. I was so pleased with it that I became a subscriber, and have been a constant reader of its pages ever since, and have the entire volume of GLEANINGS on file except a few numbers and one volume that I loaned to some of my friends that were interested in bee culture, and did not return it. GLEANINGS has been a pleasant and instructive visitor all these years at our home. "Our Homes" has caused many bright and happy hours during these years, and I trust it may cause many more in the eternal home beyond.

High-pressure Gardening and Notes of Travel have also been a source of great pleasure.

I wish GLEANINGS continued success, and expect to have it visit my home many years yet, and can join heartily in your wish that we could get together and tell stories about old times; but though we may not meet here I trust and pray that we may meet beyond the river of time, where we have the promise, if we are faithful, that we may enjoy far greater blessings with Him who has gone before to prepare a home for those who will be his followers.
Arendtsville, Pa., Dec. 21. AARON I. WEIDNER.

We notice your call for the names of those who have taken GLEANINGS for 25 years or more. We claim a front seat in the list. We have taken GLEANINGS since its first number, though we have had to pay for but a few subscriptions, owing to our becoming advertisers before the end of the second year, and therefore had the paper kindly sent to us free ever since. We have been contributors to and advertisers in GLEANINGS ever since 1874, our first advertisement appearing in the September number, and our senior's first contribution some time during the previous spring. We have sold to you and bought from you thousands of dollars' worth of bee goods, and have looked in vain for another firm which has been as closely connected with yours in a friendly or in a business way as we have been. We have preserved every number of GLEANINGS, and also have a full file of the *American Bee Journal* since its first number in 1863. We have also almost all the copies of Moon's *Bee World, The National Bee Journal, The Illustrated Bee Journal, The Bee-keepers' Guide, The Bee-keepers' Magazine, The American Apiculturist*, and also of all the bee-journals that are still published in America. In addition we have preserved sample copies of many ephemeral sheets, the perusal of which ought to discourage any beginner from attempting additional publications in a field that is so well covered. I will name a few: *The Indiana Bee-keeper, The Bee-keepers' Exchange, The Kansas Bee-keeper, The Bee-keepers' Instructor, The New England Apiarian, The National Bee Gazette The Texas Bee Journal, Our Apiary, The Bee-keepers' Advance, The Western Honey Bee, The White Mountain Apiarist, The Practical Bee-keeper, The Bee-keepers' Enterprise, Success in Bee Culture, The California Bee-keeper.*

Among the foreign bee-journals we have full files of the *Revue Internationale*, of Switzerland, *L'Apicoltore*, of Milan, and *L'Apiculteur*, of Paris, and two dozen other periodicals of less value. For some reason we have somewhat neglected our English friends, and have only a few years of the *British Bee Journal*, with stray copies of several other publications; and we still neglect to mention all the Canadian bee-publications, and the Spanish and Chilian "Apicultores."

Yours in the hope of being with you as a firm, if not in person, in another 25 years.
Hamilton, Ill., Dec. 21. CHAS. DADANT & SON.

In one sense of the word I have not been a subscriber for 25 years or more. In the winter of 1880 or '81 I was working for a bee-keeper. There is where I first saw GLEANINGS. Now, how could I have been a subscriber for 25 years or more, when I never saw it till it was seven or eight years old? At that time I knew nothing of bees, nor did I expect to ever work with them, yet I loved to read Our Homes, and about Merrybanks and his Neighbor, etc. In 1882 I sent my name to Medina, and it is there yet (and I expect it to stay as long as I and the Home Papers last). Don't throw this away yet, brother, but read on and hear of my claim as a member of that roll. Not being satisfied with what I had of GLEANINGS after reading it for a year or two I commenced hunting for back numbers, and with the help of GLEANINGS I got them all, commencing with a book of eighty pages, or 100 pages the first year, 1873, and closing this year with 950, giving me 26 volumes of nearly 20,000 pages of reading-matter. Now, what I want to know is, after reading them all, paying for them all, must I stand back, or am I a member of that Roll of Honor?
Orion, Wis., Dec. 22. F. L. SNYDER.

To be sure, you are a member of the Roll of Honor, friend Snyder. It makes very little difference whether you subscribed in the outset or thought enough of our journal to send for the back numbers. In fact, it shows more regard for a journal to go away back and hunt up every number that was ever printed, as you did, than to take it right along from the beginning. And there is one thing, friend S., that you did not mention in the above. Through these same Home Papers you were led to Christ Jesus, and have probably, since that time, carried the gospel of glad tidings to many another hungry soul. Well do I remember that pleasant visit at your home on the banks of the beautiful Wisconsin River.

Continued in our next.

OUR HOMES,

BY A. I. ROOT.

Thou hast loved righteousness, and hated iniquity. —HEB. 1:9.

THE NATIONAL ANTI-SALOON LEAGUE CONVENTION HELD IN CLEVELAND, DECEMBER 6, 7, 8.

This meeting had delegates and representatives from every State in the Union, on the very first day. At the head of the program I see a motto that sums up briefly the sentiment of this organization:

> Let us emphasize points on which we agree, and avoid subjects as to which we differ.

I was on hand some time before the meeting opened, and was captivated at the outset by the song service conducted by L. L. Pickett, of Wilmore, Ky. Friend Pickett is one of the geniuses of the age. Before he had opened his mouth I felt sure, from looking at his face, that the man had "vim" of some sort. He commenced by asking some of the singers in the audience to come up and stand beside him and help. I said to myself, "Old chap, you have put your foot in it this time. You will not get a single person to proclaim himself a singer by coming up there in front." But friend Pickett was sharper (?) than I was. He evidently did not expect the singers to come up and help on the first invitation; but he repeated his invitation in different ways, and, in fact, made an exhortation, and they did come up and sing, and he made the audience sing too. He seemed to take it for granted that they would not send away down to Kentucky for a man to conduct the singing unless he *could* conduct it. And he *did* conduct it too. He said he wanted everybody to sing, whether he could sing or not; and if all could not sing, he asked them to read the words over and think what they meant. I began to sing, and sang myself happy long before the meeting adjourned. Mr. Pickett is not only a singer, but he is a *genius*. Somebody at my elbow suggested that his zeal sometimes led him to overstep the established rules of harmony; but, dear me! who cares for "rules of harmony" when souls are dying from the lack of the gospel of Jesus Christ? Friend Pickett is not only an exhorter on temperance, but he is a natural born evangelist and Christian worker. As soon as we had a recess I stepped up and told him I wanted to congratulate him on the rare and precious gift God had given him. And then I met one of my "happy surprises." He said something like this: "Why, bless your heart, friend Root, I used to be a bee-keeper, and I took GLEANINGS. My boys take care of the bees now, but I read your Home Papers just as regularly as the journals come." When GLEANINGS first started, or for several years after it started, I used to set the names in type, and stamp the wrappers, and I learned to know every name, address and all; and that word "Pickett" used to strike me every time I went over the list.

Now, I can not tell you *all* about the grand talks we had on temperance. Rev. Louis A. Banks, of Cleveland, made the opening address; and when he told us that our temperance work was not confined to Ohio, nor even to the United States, but that it was to be carried on into Cuba, Porto Rico, the Philippines, Alaska, and finally over the whole wide earth, then we began to be impressed with the importance of this *national* organization. Gen. Shafter has already declared that no American saloon shall be opened in Santiago; and one cargo of beer has been sent away because he would not permit it to be landed on the coast. Now, then, if the United States of America and the rest of the world can not stand back of Shafter, and help him to carry it through, we ought to be ashamed of ourselves. It would seem from Dr. Banks' talk that the army officers, and, in fact, almost everybody else except the *beer-brewers*, are loud in demanding that the canteen system in the army should be abolished, and that at once. What is the reason, do you suppose, it still hangs on when every good man and woman is opposed to it? Just because the rum power has got us *all* by the *throat*. Dr. Banks did not say that in just so many words, but *I* say it. It was either the doctor or the speaker who followed that gave us a little history of New England. He said that, in former times, the great merchants of the city of Boston used to look after the enforcement of law, and see that the police, mayor, and other officers did their duty. Later on, the *manufacturers* of the great cities in the East took a hand with the merchants, and kept down gamblers, burglars, and highwaymen, and held up law. Said the speaker in substance: "Good friends, who is it *now* that looks after the enforcement of law in that good old city of Boston, the hub of the universe, as its friends are wont to call it? Why, it is the beer-brewers and whiskey-men who have their clutches so firmly riveted to every department of law and order that they pretty much run the whole thing. Now, do not think that I am making a tirade against *Boston*, and singling it out as the worst city of the United States. What is true of Boston is pretty nearly true of every other large city in our country. And it is not the large *cities* alone that are suffering from this blighting curse in municipal management. And finally, dear brothers and sisters, is it not true that your own little town or village is fast being managed in such a way that no law can be enforced where it strikes the pockets of brewers and liquor dealers?"

As this last shot went home to my heart it almost sent a chill through my veins to be obliged to confess that here in our little village of Medina, a place of only about 2500 inhabitants, the thing he pictures is getting to be veritably true. We have been making a raid on the blind saloons here in our town, as I have told you; but just at present it looks to me as if a strange kind of blight had struck not only the witnesses called up, but every officer of our town, and almost every other town, when a case comes up involving the liquor-traffic. The witness who is bright and clear until he gets on the stand suddenly becomes stupid and dumb. He does not *know* any thing, and does not *remember* any thing. The officers of the law, in some strange and inexplicable way, declare the evidence is not sufficient, or that there was a flaw in the law or town ordinance. If it is before a jury, the jurymen, who are bright and clear, honest and straight, in handling every crime *except* the illegal sales of liquors, suddenly become half-hearted or out of sympathy with the temperance folks and temperance works. Now, may God forbid that this should be the case in *your* town, my good friend. I know we have men who stand up unswervingly for the enforcement of temperance laws. We have them at our Anti-saloon League meetings; but a great part of them are ministers of the gospel—men who have not any property to be destroyed; but these faithful servants of a righteous God have several times lost their *lives* because they waged an uncompromising war against this evil. At the Stillman Hotel, where we stopped, we were offered a reduction providing two of us would occupy the same room. My room-mate was from Vermont. Before we retired I found that his dwelling, barns, and stables had all been burned because he pushed ahead in prosecuting the saloon-keepers. His friends told him his property *would* be destroyed, but he said it would have to go—that is, if the conditions under which he kept it were that he should stop meddling with the whisky-dealers. A good many persons had suffered in a like manner; but, may God be praised, within the last few months, in a good many towns in Ohio at least, it is getting to be the *fashion* to fine and imprison saloon-keepers who violate law.

The response to Dr. Banks' address of welcome was made by Rev. E. S. Chapman, of the Northern California Anti-saloon League, Oakland, Cal. When Dr. Banks spoke it seemed to me as if there could not be another address equal to it during the whole session; but Dr. Chapman was not a whit behind; and I had another of my "happy surprises" when Rev. W. F. Crafts, Ph. D., gave us his address entitled, "The Saloon in the New Century." No wonder we had a startling array of talent, energy, and enthusiasm for righteousness, for we had about the best men that could be picked from each State of the Union. The social interchange of thought during recess, at mealtime, at the tables of the Stillman House, and other places, was a very valuable and important feature of the whole gathering. If any one of you, dear friends, have lost heart and courage in this terrible combat, let me advise you to attend the meetings of the Anti-saloon League. Almost every town now, little and big, is having a law-and-order-enforcement branch of the League. In this way a single person is not called upon to stand before the enemy alone as a target for their spite. It is an organization of good citizens who are in favor of law enforcement. Let me give you a few illustrations of what is being done. Of course, we have to depend a good deal upon detectives; but the brewers too get hold of the detectives. In one little town in Ohio a Cleveland detective was employed to get evidence. He got it very easily. One of the saloon-keepers found out what was in the wind, approached the detective, and offered to pay him *more* money than the Anti-saloon League could pay. But our League was too sharp for even this game. They shadowed the detective with a good man, and arrested him in the act of receiving $250. He was to receive this money for being off where he could not be found when he was wanted as a witness. That detective is now in the Ohio Penitentiary, where he can be found every time he is wanted, until he pays the penalty of his crime. I did not learn what they are doing with the saloon-keeper.

Here is another point: In many of the little towns the brewers own the saloon, and they protect the saloon-keeper as a matter of course. But in one place we worried them so badly that they told the saloon-keepers of that town to pack up their furniture and liquors, and ship them back to the Cleveland house. Said house declared they could not stand the "racket." They said they would have to find another town, where the people were not so strongly in favor of temperance, or wait till the thing had blown over a little and the temperance craze had quieted down.

Now, then, ye people of this land of liberty, as we are wont to call it, what shall the future be? Is the rum power to run things according to its ideas of law and order, or is it to be in the hands of the good people—those who love righteousness and hate iniquity?

NOTES OF TRAVEL

BY A. I. ROOT.

A WHEELRIDE THROUGH SOUTH DAKOTA.

After the bee-keepers' convention at Omaha had adjourned I made a trip to South Dakota to look after half a square mile of land located within about a mile of the town of Mitchell, Davidson Co. Besides looking after the land I wanted to look after a very good friend of mine, Mr. C. M. Peck, in the employ of the American Sunday-school Union. Friend Peck has been for a good many years locating Sunday-schools, and exhorting and reviving schools already started through that portion of the State. Let me go back a little.

Three or four years ago Bro. Peck had a project for holding meetings in a tent as an auxilliary to his Sunday-school work throughout that locality. He thought that, after he had the tent, he could raise, by way of collections and subscriptions, sufficient to pay for it. But somebody would have to advance the purchase money. Now, do not think I wish to boast when I tell you it was my *privilege* to furnish the funds. From time to time I had heard good reports of the tent work, and these reports have been accompanied by remittances so that the money I advanced had been all paid back some little time before my visit. Friend Peck met me at the train, and announced that there was to be a meeting out on the great prairies, a little over thirty miles away. Now, friend Peck is a wheel-rider, and I had my chainless Columbia with me, and so I proposed that we should by all means go on our wheels. But he thought we had better take the train. He feared that thirty miles would be too much for me in one afternoon, especially if we wanted to be in good trim for the meeting in the tent that Saturday evening.

"Why, look here, Bro. Peck. I never ride on a train under any circumstances when there is a possibility of making the same trip by wheel. In fact, I have often ridden the wheel when I had a ticket in my pocket to go on the train."

So, off we started. Now, I have a good many times, as you may remember, told you about the "finest roads for wheeling in the world;" but the black prairie soil, when it is tramped down hard by travel, and swept cleaner than any housewife could sweep a floor, by the tremendous Dakota winds, is certainly equal to any thing on the face of the earth. In many places it is scarcely a bit behind an asphalt pavement. Providentially the wind favored us; and it blew as only Dakota winds *can* blow. Oh what fun we had that afternoon! The thirty miles of road was almost a level stretch, or at most only slightly undulating; and all the way was through large farms, some of them a mile square, sometimes a square mile of wheatfields interspersed with grass and pasture. Before sundown we could see the tent, a little white speck away off in the distance.

The Rev. R. N. Kratz was to assist in the services that evening, and we caught sight of him sitting in a camp-chair at the door of the tent, reading. My two friends feared the cold lunch they oftentimes put up with in their tent work would not be just the thing for me. But I assured them, first by words and afterward by practical demonstration after riding thirty miles in one afternoon, that almost any kind of wholesome food, providing there was plenty of it, would answer tiptop. I remember vividly that we had a cold chicken. And then there were some loaves of brown bread made of Dakota flour. Now, I am very partial to bread that is well baked, and old enough to be tolerably dry, and this filled the bill to a dot. I am very fond of the right kind of bread and butter; in fact it is, a good deal of the time, almost the only thing I eat with my beefsteak. But this bread was certainly the most palatable and satisfying of any I had ever before found, east, west, south, or north; and, to tell the truth, every bit of bread I saw while in Dakota seemed to be quite a little superior to any thing in that line I ever got hold of before. First I give the credit to the wheat grown on those dry prairies, and then to the good housewives who know how to make bread, and, in fact, to do almost any thing else in the way of getting up an appetizing meal. I was somewhat acquainted with Bro. Kratz already. I first met him and learned to love him in our Medina County jail. One Sunday when I was pleading with a pretty good-sized class of prisoners (that was years ago, before the saloons of Medina were banished) Bro. Kratz was brought in and introduced to me. We were both at that time engaged a good deal in prison work, and therefore when he reached Medina, and somebody told him I had a class in the jail, he obtained permission to come in. I do not know how much good his exhortations did the *prisoners* that day. It seems to me his kind and earnest words ought to have saved at least one soul if not more. But they warmed my heart toward him in a way I shall never forget. I do not know but he will scold me for what I am going to tell you. As I got it from other parties I may not have gotten it straight; but I took pains to find out, and I know I am pretty nearly right when I tell you that he dropped a government position, relinquishing quite a good sized salary, in order that he might take up with this evangelistic work over the Dakota prairies, even though the latter did not afford him more than a half — perhaps not even a *third* — as much as his former office. He did it because God's voice *called* him to the work. Now, Bro. Kratz is a Methodist while Bro. Peck is a Congregationalist; and yet these two friends labored together in a way that brought to my mind again and again the story of David and Jonathan in holy writ.

Toward dusk loads of people began to come in from away out across the prairies; and, oh what a nice meeting we had!

The next morning I wanted to see the sun rise out on the great prairie. In fact, my two friends told me that sometimes there were beautiful mirages to be seen. But the mirages did not get along that morning, but something *else* came along. Bro. Kratz put his head out of the sleeping-tent and happened to get a glimpse of my chainless wheel, and asked me some questions about it. Now, we were all away out in the country. The houses were nearly a mile apart, and there was not anybody up, anyway. I suggested to Bro. Kratz that he should get out on the smooth road and just run it a few rods to see how it would go. Well, he started off; and as it seemed easier to go ahead than to stop, he kept on; and the next thing I knew the minister in his shirt-sleeves and slippers, and his white hair flying, was getting out of sight in the distance, on the beautiful Dakota roads, on that beautiful Sunday morning. By this time Bro. Peck looked out, and we had a big laugh to think of the devoted pastor riding a wheel just for sport on Sunday morning. Bro. Peck suggested that Bro. K. was going around the square so as to come in from the other direction. I wonder if some of my good friends will not think I am a little loose in my ideas in regard to keeping the Sabbath. Permit me to say, briefly, that, were it not for the precedent it might be setting, I would do a great many things that I now refrain from doing. I once asked a noted divine a question something like this: "Bro. Ryder, if you were on an island, as was Robinson Crusoe, and you and your wife and children were the only inhabitants, if I understand you correctly you would not hesitate to take your horse and buggy and ride around the island Sunday evening."

"You are right, Mr. Root. The greatest reason, if not the only one, why I do not go out riding Sunday evening is because of the example it would set to those who, when they once get started in Sunday riding, would have no conscience or scruple to control their actions."

About nine o'clock loads of people might be seen coming from every point of the compass. All came — old and young. I do not know that I ever attended a Sunday-school or meeting where there was so much diversion in the way of childish prattle from those who were not old enough to know any better; but the childish prattle just made *me* feel happy, and I am sure my two friends felt as I did about it. The meeting kept increasing in size all day long, and we had four different services; and after the evening meeting had got started the people came crowding in to such an extent that we tied up the side curtains of the tent, and there was a great circle spread out on the grass all around in every direction from the speaker. The services were all short, sometimes all three of us taking part in one meeting. Some arose for prayers at the close of the meeting; but aside from this I know that good was done to many more, by the animated faces and close attention given to every word that was uttered.

In the afternoon we were invited a couple of miles away to take dinner at a farmhouse. Let me say, by the way, that I made a similar visit in the same place seven years ago last November, and I felt greatly pleased to see so many prosperous farms and new comfortable houses that have been built in the interval since I was there. They do not get large crops of wheat on those great Dakota farms— that is, not great crops per acre; but when the people become acquainted with the climate, and make due calculation for the possible dry summers, they manage to get along very well.

The next morning we were up bright and early, and I was greatly interested in seeing Bro. Peck pack his tent, and load it all on to a one-horse wagon — not only the tent alone, but a side tent for sleeping and cooking, and seats enough to accommodate about a hundred people. The whole outfit, wagon included, under Bro. Peck's careful planning, cost only about $150. Such a tent answers every purpose for outdoor meetings much better out on these dry prairies than it would in ordinary localities. In fact, one can sit or sleep on the ground out here, without any trouble.

After we were all loaded up two of us were to ride wheels, and the third was to drive the horse. In order to enjoy the trip we changed about. First one would drive, and then another. And, by the way, very providentially, the wind changed during the night, and blew just the other way. In one of the finest stretches of road on our way home, Bro. Peck and I timed ourselves for speed. If I remember correctly I rode a mile in a fraction less than four minutes. Bro. Peck got it down to three minutes and a half, and said he thought he could make it three. But neither of us felt like exerting ourselves unduly just to tell how fast we could ride.

The artesian wells of South Dakota that I had so much to say about in November and December, 1891, are still pouring forth their liquid treasures. But I was greatly disappointed to find that, at least in the vicinity of Mitchell, but little use is made of the water for irrigation. Several had an idea that the minerals that this artesian water contains are rather detrimental to at least many crops. There were, however, different opinions in regard to the matter. We passed many artesian wells, some of them throwing large streams of water; but it seemed to be used mainly for watering stock. In many places it just runs off into a quagmire instead of being a benefit to any one.

The next day we made a trip off about twenty miles to the north. We had the usual powerful wind that blows almost every day in those regions. If it is behind you, all right; but if it is coming in your face, travel on a wheel — that is, with most wheels — would be practically out of the question. There were three of us with two wheels and the horse and buggy. We decided we could get home that afternoon by changing about; and with my chainless Columbia I found I could make some headway, even when the wind blew a regular gale; and then when it slacked up I could shoot ahead at a pretty fair speed. In this way I made ten miles in one afternoon without becoming very much fatigued. On the way I caught up with a wheelman whom I afterward found to be the mayor of the city of Huron. Just for fun I told him to try my wheel and I would try his. He had one of the best up-to-date chain wheels. I could not work his against the wind at all, and had to give it up; but he got along very nicely on mine.

THE WEATHER ALMANACS, LONG-WEATHER PREDICTIONS, ETC.

My attention has just been called to an article published last January in the *Monthly Weather Review*, by the U. S. Weather Bureau, Washington, D. C. From this article I make the following extract:

> The least rational almanacs are those that pretend that the weather is controlled by planetary combinations and stellar influences, therefore such predictions are properly said to be based upon astrology.

Let me copy still further from the same article:

> The least scientific system of preparing the almanac predictions was explained to the editor many years ago by a gentleman whose almanac made the greatest pretensions to high scientific accuracy. This gentleman stated that on certain days he felt endowed with a certain ability or inspiration. These were his weather-making days, on which he sat down, and, with the most absolute confidence in the accuracy of his work, wrote up the weather for the coming year, continuing at the work for a considerable time until the inspiration seemed to leave him, whereupon he necessarily stopped, and delayed resuming the work until again filled with the spirit of divination.
>
> Doubtless some almanac-makers adopt a combination of the preceding methods; but, in general, these seem to be the principles most widely recognized in

the long-range predictions of the almanacs, except only that in all cases the authors make free use of a system of general and rather indefinite terms that will apply just as well to a thunderstorm, a hurricane, or an earthquake. The warning, "Look out for something very unusual about this time," is, of course, not a meteorological prediction, and not nearly as definite as the railroad signboard, "Look out for the engine when the bell rings."

Our readers may remember that I declared with some vehemence that a knowledge of astronomy does not warrant scientific men or any other class in declaring that they can predict a whole year ahead what the weather is going to be. Now, the above, from the Weather Bureau, throws a little light on the matter. Even though I can not understand how maps showing how the motions of the planets should help one in making long-range weather predictions, I *can* see some sense and consistency in claiming that God gives "inspiration" to certain persons; but establishing the *claim* of this inspiration would be quite another matter. "By their fruits ye shall know them." If a man who claims to be inspired keeps using the stereotyped phrase, "Look out for something very unusual," etc., I should demand that he tell beforehand what the "unusual" thing is to be. If his followers declared, after it was past, that it meant dry weather at one time, floods at another, a blizzard, or unusual *heat* for the season of the year, etc., I should reject the "inspiration" theory. Wouldn't you? In regard to the question as to whether the combined science of the present age gives any encouragement to these long-range predictions, permit me to quote just two sentences from an article by Prof. Willis L. Moore, chief of the U. S. Weather Bureau, in the *Forum* for May:

> At the present time I know of no scientific man who essays to make long range weather predictions; and I would especially caution the public against the imposture of charlatans and astrologists, who simply prey upon the credulity of the people.
>
> I believe it to be impossible for any one to-day to make a forecast, based fairly upon any principles of physics or upon any empiric rule in meteorology, for a greater period than one or two days in winter, or for more than two or three days in summer.

While we are on this subject, permit me to say that I have been reading the questions and answers in the Cleveland *Daily News and Herald* for more than a year back, and I have been both pleased and surprised to note the soundness and correctness of answers covering almost every realm of science, geography, and history. If the *Herald* has one man who can answer so well every thing that a world of people propound, he is certainly a scholar. Well, in a recent issue somebody who was curious in regard to this weather matter propounds the following questions:

1. On what are the predictions of certain almanacs based which tell what the weather is to be through the year in advance?
2. Why does not the United States Weather Bureau employ the prophets who do this work, and so get predictions a long way ahead?
3. What connection is there between the weather and the changes of the moon?

Below are the three very sensible answers:

1. Various systems, all no better than guesswork, except as they take account of the known probable duration of "dry spells," "cold waves," "heated terms," and the like, are used. The predictions rest on nothing more substantial than a sort of loose probability that the weather will change at about the stated intervals.
2. Governments aim to get as far as possible away from guessing in their scientific departments.
3. None, so far as known.

SOMETHING FURTHER IN REGARD TO THE LOSS OF MR. COWAN'S CHILDREN.

THE following is copied from a leaflet just received from Mr. Cowan.

"Death is swallowed up in Victory."

"Underneath are the Everlasting Arms."

"This is the Victory that overcometh the World, even our Faith."

IN LOVING REMEMBRANCE
OF
HELENA MARY
AND
HERBERT FRANCIS COWAN,
who were taken home in the
Wreck of the "MOHEGAN," on October 14th, 1898,
on the "Manacles," near the Lizard, on the
Coast of Cornwall.

Their bodies were recovered the next day, absolutely uninjured; and the beautiful, calm, holy expression on each of their faces proved that death for them was an entrance into life eternal, and the Everlasting Arms were indeed beneath and around them as they were carried and tossed by the relentless waves amongst those terrible rocks, and laid perfectly unharmed upon the shore. Their bodies were laid to rest at Budock, near Falmouth, almost in sight of the scene of the disaster, to await a joyful resurrection.

In addition to the above I take the liberty of making a brief extract from a very kind letter from friend Cowan himself in regard to this sad event:

> Indeed we have much to be thankful for, as both our dear ones had devoted their lives to their Master's service; and after they had been called home the beautiful expression on their faces testified to their entrance into glory. They died as they lived; and we heard from a survivor that they had refused to go into the life-boats, as they were good swimmers, and the life-boats should take those who could not swim, and they were seen apart on the deck of the vessel, quite calm and collected, and went down with the vessel. Death must have been instantaneous.

GLEANINGS is always clear and up to date, and I can say for one that I can get all the information that is necessary out of it. Your Christmas number is something of a "hummer," and plenty of good reading for bee-men; also useful for reference to the whole year's journal, which is worth considerable to all subscribers. WM. DICKINSON.

Streator, Ill., Dec. 22.

ONE DOLLAR WELL INVESTED.

About a year ago last September I sent you $1.00 for GLEANINGS, with a promise of a queen as a premium; and now at this late day I am going to give you the results of my venture. GLEANINGS came all right, and so did the queen. At that time I had no good place to put her majesty excepting a rather small queenless colony of very doubtful ability to winter. But I put her in, and kind o' hoped she would go through, because she came from the same State so many of our good presidents did. In fact, I named her Mrs. McKinley. Last spring when warm weather came on, she began to spread out and fill the hive up with brood; and out of 15 colonies she outdid them all. I took over $10.00 worth of honey from her hive, and they are packed away now with a far better prospect for another year than they had last. That was the most profitable dollar I ever squandered in my life.

GLEANINGS is cheap enough without any premium; but you know we bee men always take any thing we can get. SANFORD HARTMAN.

North Platte, Neb., Nov. 6.

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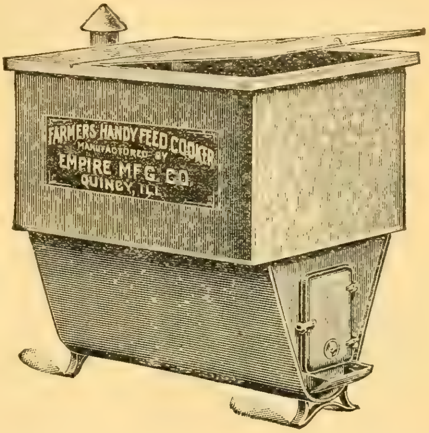

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W. H. LAWS, Lavaca, Seb. Co., Ark.

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The A. I. Root Co.'s Goods At Their Prices.

Including their discounts for goods wanted for use another season. It will pay you to send me list of goods wanted.

Cash for beeswax. **M. H. HUNT, Bell Branch, Mich.**

Special Notices by A. I. Root.

GARDEN SEEDS, ETC., FOR 1899.

Our list of seeds and prices will probably appear in our next issue. For many years I have been raising our own seed beans; but until the present year the price has been so low that it did not really pay, and I suppose others must have felt just as I did; but now Wardwell's kidney wax beans, and, in fact, almost all kinds of wax beans or green snap beans, are worth from $5.00 to $8 00 a bushel. What a nice little "spec" it would have been had somebody raised a great lot of beans for seed for 1898! One Florida friend sent us $49 for kidney wax beans, stipulating they must be "crop of 1898" So far I have not been able to find them, even at any price. Every seed. man I have corresponded with has been sold out. I found several lots of the crop of 1896 and 1897, and these were recommended, saying they would germinate fairly. But our Florida friends, knowing how much depends on the quality of the seed, are afraid to try beans more than a year old.

Until further notice, Kumerle bush lima beans will be: Quart, 25c; ½ peck, 85c; peck, $1.50.

Burpee's bush lima: Quart, 35c; ½ peck, $1.10; peck, $2 00; bushel, $7.00.

Davis wax or Wardwell's kidney wax: Quart, 20c; peck, $1.50; bushel, $5.00.

Pole lima beans, extra early lima and King of the Garden lima will be: Quart, 25c; peck, $1.50.

All kinds of sweet corn will be: Quart, 15c; peck, 75c; bushel, $2.50.

On onion seeds, the best price we can quote at present is, Yellow Globe Danvers, Large Red Wethersfield, and Extra Early Red, each, $1.00 per lb.; Prizetaker, $1.75 per lb. All other seeds will be as in our catalog.

Potatoes are lower, as you see by the following table:

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
White or Red Triumph...	$ 18	$ 40	$ 25	$ 40	$ 75	$ 1 25	$ 3 00
Bovee...	18	40	25	40	75	1 25	3 00
E Thoro'bred, Maule's..	18	40	20	35	60	1 00	2 50
Early Ohio...	18	40	25	40	75	1 25	3 00
Early Prize...	15	35	20	25	40	75	2 00
Burpee's Extra Early...	18	40	25	40	75	1 25	3 00
Freeman...	18	40	20	35	60	1 00	2 50
New Queen...	18	40	20	35	60	1 00	2 50
Monroe Seedling...	15	35	20	25	40	75	2 00
Rural New-Yorker No. 2..	15	35	20	25	40	75	2 00
Mill's Prize...	15	35	20	25	40	75	2 00
Carman No. 1...	18	40	20	35	60	1 00	2 50
Carman No. 3...	18	40	20	35	60	1 00	2 50
State of Maine...	15	35	20	25	40	75	2 00
Manum's Enormous...	30	75	30	50	85	1 50	3 50
New Craig...	18	40	25	40	75	1 25	3 00

OUR ROLL OF HONOR.

Since the list of veterans was put in type a great many more letters have come in. In fact, it begins to look as though a great part of those who started with GLEANINGS in its first year had kept right on. I am afraid Ernest will scold when he sees how much space I am planning to use, for letters from the veterans; and I have been trying to boil them down somewhat; but each reminder of olden times sounds so good (to me at least) that it almost seems wicked to draw my pencil through a single sentence. May I ask the younger ones to be patient with us a little while? for a good many of us are writing pretty nearly our last letters, and then we will soon give you the whole field These communications will run through our next issue, and may be two or three issues more, if they should keep showing up as they have done for the past few days. May God bless you all, friends. Your names are all familiar, and it has been one of my happy surprises to see that so many of you are *still* taking GLEANINGS.

In addition to GLEANINGS free to the veterans, we are going to send by mail a glass paper-weight explaining the mathematics of the honey-comb. This was one of my hobbies about twenty years ago, and I spent a good deal of time in making this geometrical figure out of beeswax, sugar candy, etc. But those of flint glass are ever so much the nicest. You can put one on the center-table as a little reminder of your old friend Novice, and of the high regard in which he holds all of those who started with him and have stood by him for a quarter of a century.

CONVENTION NOTICES.

The California State Bee keepers' Association will hold its annual convention at the Chamber of Commerce, Los Angeles, on the 11th and 12th of January, 1899. J. F. McINTYRE, Sec.

Wants and Exchange.

WANTED.—To exchange a Mann green-bone cutter, No. 6, for honey, bee-fixtures, or offers.
A. W. CARSON, Joplin, Mo.

WANTED.—To do gunsmith work in exchange for bee-supplies or cash. My specialty is making new muzzle-loading rifles, and restocking all kinds of guns. Broken parts can be sent cheaply by mail. Correspondence answered. S. B. POST,
R. D. No. 2, Washington, Pa.

WANTED.—No. 1 white comb honey in 4x5 inch sections; also to furnish my hives and 4x5 sections for a share of the next honey crop, to parties within 100 miles of this city. Address *at once*
F. DANZENBAKER, Washington, D. C.

WANTED.—Young man who does not use liquors or tobacco to work the coming season on farm where honey, fruits, and general farm crops are raised. Give references. C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—Your address for a free copy of my book on queen-rearing.
HENRY ALLEY, Wenham, Mass.

WANTED.—Bees on shares or position in apiary. Lifetime of experience. Reference given and required. F. M. MUNSON,
801 Church St., Elmira, N. Y.

WANTED.—To exchange supplies for bees on Dadant's frames. I. J. STRINGHAM,
105 Park Place, New York.

WANTED.—To exchange a Novice honey-extractor and a 200-egg-size Excelsior incubator, both in good running order, for beeswax or offers; also a few S. C. White Leghorn cockrels.
Pine Grove Bee & Poultry Farm, Richford, N. Y.

WANTED.—To exchange two small printing presses and printing outfit for bloodhounds, ferrets, fancy poultry, bicycles, or something I can use.
JAMES M. DENHAM, Valley, Ky.

WANTED.—To know what you have to exchange for new varieties of raspberry-plants; also Campbell and Alice grapevines.
MRS. LIZZIE McQUEEN, Baltic, Ohio.

WANTED.—To sell or exchange one female bloodhound, 4 years' old, fully trained, with good record. Also one dog pup 5 months old. Address at once
R. GOLLING, Lenoir City, Loudon Co., Tenn

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Honey Column.

CITY MARKETS.

BOSTON.—The demand for honey seems to have dropped out of sight during the holiday season; but now that is over we hope to see a better call for it. There is abundance of stock on hand, and it now looks as though the expected shortage would not materialize. We quote our market, fancy white, 13@14; A No. 1 white, 12; No. 1 white, 11; light amber, 9@10; buckwheat, no call; extracted white, northern stock, 7@8; southern stock, 6@7; beeswax, 27.

BLAKE, SCOTT & LEE,
Jan. 9. 57 Chatham St., Boston, Mass.

CHICAGO.—The trade is not active in comb honey at this writing, as many of the dealers are supplied with sufficient stock to meet wants. Prices range as for some time past, 13c being obtained for best white, and 11@12 for that which lacks in fancy requirements; extracted, 6@7 for white, 5@6 for amber and dark; beeswax, 27.

R. A. BURNETT,
Jan. 7. 167 South Water St., Chicago, Ill.

MILWAUKEE.—The condition of this market on honey is about the same as when we last reported. The demand has not been very urgent, and sales and receipts have been about equal, but the supply of fancy stock is small. We desire to receive more of the *best.* We can now quote fancy 1-lb. sections at 12½@14; A. No. 1, 12@12½; No. 1, 11@12; dark or amber, 8@11; extracted, in bbls., kegs, and pails, white, 6½@7½; dark, 5@5½; beeswax, 25@27.

Jan. 9. A. V. BISHOP & Co., Milwaukee, Wis.

DETROIT.—Fancy white, 13; No. 1, 11½@12; fancy dark and amber, 9@11; extracted white, 6@7; dark, 5@5½; beeswax, 25@26.

M. H. HUNT,
Jan. 10. Bell Branch, Mich.

CLEVELAND.—We quote our honey market to-day as follows: Fancy white, 13@14; No. 1, 12@12½; light amber, 11; buckwheat, 9; extracted, white, 7; light amber, 6.

A. B. WILLIAMS & Co.,
Jan. 10. 80-82 Broadway, Cleveland, Ohio.

PHILADELPHIA.—Honey is selling slowly since the holidays. The supply equals the demand. Fancy comb, 15; No. 1, 13; amber, 10@11; buckwheat, 8; extracted white, 8; amber, 6@7; buckwheat, 6; beeswax, 28. We are producers of honey—do not handle on commission.

WM. A. SELSER,
Jan. 10. 10 Vine St., Philadelphia, Pa.

COLUMBUS.—Honey trade quiet; stock ample; prices barely steady at 12½ for fancy, 10@11 for No. 1, and 8 for amber.

THE COLUMBUS COMMISSION & STORAGE CO.,
Jan. 1. 409-413 N. High St., Columbus, O.

ALBANY.—Demand for honey steady, and prices remain about the same as our last quotations.

MACDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
Jan. 7. Albany, N. Y.

FOR SALE.—About 3000 lbs. of extracted honey on hand. All white horsemint in cases of two 60-lb. cans. Make us an offer on it, as we are anxious to close it out. O. P. HYDE & SON, Hutto, Tex.

FOR SALE.—3000 lbs. No. 1 white extracted honey at 7c, F. O. B. Jackson, Mich. Also a lot of white and amber comb honey. W. D. SOPER, Jackson, Mich.

FOR SALE.—800 lbs. comb honey—500 lbs. pure white clover at 11c; 300 lbs. of buckwheat at 6½c f. o. b.
WILLIAM VANAUKEN, Ellisburgh, N. Y.

The Bee-keepers'
REVIEW

for December shows in its frontispiece "The Neatest Apiary in Michigan," and the owner of this apiary, or, to be more exact, his son, contributes an article upon "Beauty and Neatness," in which he shows that they are of more importance in the apiary than they are generally given credit for.

Mr. Harry S. Howe, Mr. W. L. Coggshall's "lightning operator," tells how he reads the bee-journals—what is wanted in them, and how to get the most out of them.

There is an editorial of nearly three pages upon "Success." It is not a lot of dry platitudes and generalities; it is full of freshness and vigor, and of illustrations drawn from the editor's own experience. The reading of it may change your life from the dull common place to one of unbounded success.

Then there are the "Criticisms" of Mr. Taylor; the "Views" of the inimitable Hasty, the "Extracted Dept.," etc.

The Review is $1.00 a year; but if you are not a subscriber, you can, for only $1.80, have your subscription to GLEANINGS renewed for one year, get 12 back numbers of the REVIEW, and then the REVIEW for all of 1899.

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Flint, - - - Michigan.

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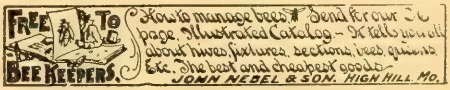

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APIARIAN SUPPLIES

the coming year? If so, you want to get a good quality of goods at a reasonable price. Our aim will be to please you. Will you write us **now**, stating what you will need, and allow us to quote you prices? You will

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by ordering now; goods to be shipped and paid for when wanted. It will cost but two cents, and save $. We keep several carloads in stock.

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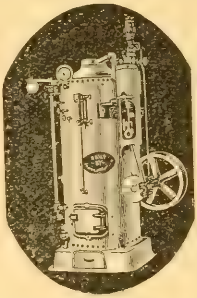

in the practice of modern agriculture. They are **needed for shelling corn, grinding feed, cutting fodder or ensilage, separating cream, wood-sawing, pumping water** and a host of other things.

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—— ADDRESS ——

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118 Michigan St., = = Chicago, Illinois.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

VOL. XXVII. JAN. 15, 1899. NO. 2.

STRAY STRAWS FROM DR C. C. MILLER

"IS IT TRUE that bees are less likely to sting one with white clothing than with black?" is a question in *American Bee Journal*. In answer, 19 say yes, and 7 think not or have not observed.

IN REPLY to F. L. Thompson, p. 14, I've used illusion for the face of bee-veils, and it's the best thing I ever used if it would last. But it's so unsubstantial that it's practically too expensive.

SEPARATORS of wire cloth are spoken of on p. 15. They were used by N. Betsinger a good many years ago, were greatly praised by him, and I think they were patented, but somehow no one else seemed to use them.

THE EDITOR gets the start of me on p. 6 by means of a "perhaps" which leaves the matter in suspense, and then his head is so turned that he says, "But wide frames are section-holders without top-bars." O Ernest! [So they are, doctor. If not, what are they?—ED.]

A PURE-FOOD CONFERENCE for Illinois is called by the presidents of ten different associations, agriculture, horticulture, apiculture, etc., led by the president of the State Board of Health. May be Illinois will climb up to where Ohio stands, so you Ohio fellows won't look down any more on us Suckers.

C. T. BONNEY, p. 14, seems to think large queens a great desideratum; but don't Doolittle and others say that medium-sized queens are best? [There, now, I always supposed Doolittle was an advocate of large queens, as his method certainly produces them. I have always found that the large ones were the most prolific.—ED.]

FOR CANNING FRUIT, honey is better than sugar, according to E. D Howell, in *American Bee Journal*. Cook fruit till tender in a tight-covered kettle in the oven, then add the honey, bring to a boil on top of the stove, and seal up; ¼ pound honey for each pound of peaches or other fruit not very sour. No water need be added except for such dry fruits as quinces and apples. Use best honey.

A SERIOUS OBJECTION to C. P. Dadant's plan of adapting the number of combs to the size of the colony is not mentioned by him, p. 8. If the hive is not filled with brood-combs, the part of the super that comes over the vacancy will be poorly worked by the bees. For extracted honey, of course that makes little difference.

"WE ARE TOLD in the bee-journals that the poison of the bee is formic acid," says Geo. L. Vinal, page 15. No, not nowadays. The poison is something separate from the formic acid. See Straw, p. 42, Jan. 15, 1898. To the question why that strong horse died from the stings, I'll venture the answer that he got more poison into him than he could dispose of.

BEE CHAT, the British quarterly published by S. Simmins, gives promise of continued life, and has now become a monthly. The tone of *Bee Chat* is such that one can not help wishing it long life. Somehow good-natured people seem to live longer than crabbed ones, and that's pre-eminently true of bee-journals. [Yes, it is a very sprightly journal. It has one quality that makes it readable; namely, its editor is full of enthusiasm.—ED.]

F. GREINER doesn't paint with any too high colors, p 10, the advantages of the great German bee conventions, and certainly doesn't give a just idea of the large attendance, and especially of the immense membership of the association. Some things, as the drinking and smoking, and the time occupied with other than bee matters, would not be relished by Americans; but on the whole the Germans are far ahead of us in the matter of organization.

DOOLITTLE is a hard man to do any thing with. Between him and Dadant I have a hard time of it. In that Straw, p. 869, I chuckled to myself that I had Doolittle in a corner; but he slides out of it as easily as you please by saying, p. 11, that extracting makes bees feed the queen so she doubles her laying. That dazes me, for I've no means to dispute it. I've only breath enough left for a question or two. Bro. Doolittle, when I find a queen occupying 12 to 14 combs with brood without any extracting, would that same queen occupy 24 to 28 Langstroth frames if I should extract? And if I find a queen keeping 8, 9, or more

Langstroth combs *full* of brood, when working for comb honey, would such a queen be entertained to her fullest capacity as to egg-laying if confined to 6¾ frames?

I'M AFRAID that, if the punctuation in GLEANINGS were to be left to the tastes of the writers, as F. L. Thompson suggests, a good many things would not be very clear. Who is to decide which writers have the proper taste? I have some grudges against the proof-reader, and should like to be independent of him; but I don't know enough yet to be sure whether a comma or a semicolon is the right thing, so please W. P., keep sprinkling in a few commas and things wherever they'll do the most good, so as to make my writings intelligible—when you can.

THE IDEA that sections of honey will pass better for genuine when daubed with propolis, Editor Holtermann thinks about as reasonable as to have cows' hair in butter to attest its genuineness. [I quite agree with Mr. Holtermann; and yet that idea does obtain with quite a large number, but wholly, I believe, on false grounds. A clean section box of honey will outsell a propolis-daubed one in most markets; and yet if I can judge by the honey that comes here (and we buy thousands of pounds every year) many bee-keepers, at least, seem to think that scraping is not a necessity. Whether they think so or whether they are too lazy to go to the extra trouble, is a question.—ED.]

ON PAGE 6 I made such bad use of language that it might be understood that Doolittle lets the young queen cut out queen-cells in his plan for preventing swarming. Not so; the bee-keeper cuts them out at the time of putting in the young queen. [Yes, your language was susceptible of a double meaning. I might have known that no queen, young or old, would cut down cells *invariably*, when introduced to a queenless colony. I have introduced dozens of queens that let cells go, with the result that a virgin would hatch, and then the old queen would be missing. We have made it a rule that it is never safe to attempt to introduce valuable queens without first destroying cells in the hive. I can not imagine why I should have fallen in with the idea so readily unless it was because I thought Doolittle generally right on points of this kind.—ED.]

F. L. THOMPSON is right, p. 14, in objecting to the use of quotation-marks that don't quote. I'm going to try to do better in that direction—see if I don't. But I feel like asking Bro. Thompson whether that veil-stuff he talks about a few lines above is not illusion instead of "illusion." [I quite agree with Mr. Thompson in believing that there has been too free a use of "quotation-marks that don't quote" (*these* quote). Sometimes they are used as a sort of apology for a word not fully recognized by the dictionary; sometimes for the evident purpose of introducing pleasantry. Their occasional use, however, in our columns has been the choice of the writers and not of the proof-reader, who has marked out thousands. But as Mr. Thompson claims that a writer should be indulged in the exercise of his own "notions" in punctuation he can not very well complain if some should ride the quotation hobby too freely.—ED.]

F. L. THOMPSON asks why I say "*Review*" instead of "*the Review*," p. 14. For the same reason, I suppose, friend Thompson, that in *Review*, page 332, you say "*American Bee Journal*" instead of "*The American Bee Journal*;" it's shorter. I suppose that "*The Bee-keepers' Review*" is its full title; but if there is no misunderstanding it's not a bad thing to shorten it. If you drop out "Bee-keepers'," why object to dropping the less distinctive part of the name? [This is a case of hypercriticism. There are really many things that surely need correction, without taking up those that are of no consequence. It matters little whether we say *Review* or *The Review*. —ED.]

DEAD BROOD "greatly resembles foul brood; and the only distinct differences are, first, it is not contagious; and, second, very little of the brood dies," says a footnote, p. 20. Isn't there a distinct difference in ropiness, and perhaps smell? [Yes, I have seen quite a little dead brood that was ropy. Once we had considerable of it in our apiary. It did not seem to spread from one colony to another, nor was there any particular odor to it that I remember. Indeed, there is no perceptible smell to foul brood when there are only a few scattering diseased cells. I formerly thought that the crucial test of foul brood was ropiness; but after having seen these dead or pickled brood cases I have had to conclude that it is not necessarily a decisive symptom. I think we may say this, however: That dead or pickled brood is so rare that, when larvæ assume a brown color, and are somewhat shrunken, lie on the sides of the cells, and are ropy, it indicates foul brood. In speaking about the odor of this disease it does not seem to be very pronounced—to me at least—unless the brood-combs are rotten with it, and then there will be that pronounced cabinet-maker's glue-pot smell.—ED.]

GENERAL CORRESPONDENCE

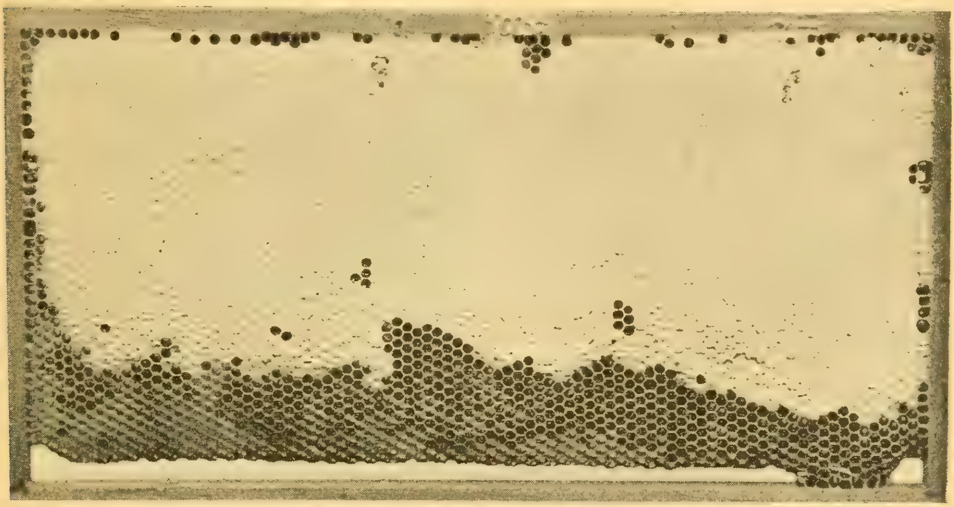
TRAVEL-STAIN; WHAT IS IT?

Conditions Under which Travel-stain, so called, May be Avoided; a Valuable Article.

BY J. E. CRANE.

Whiteness appears to be largely the standard of excellence in comb honey in the United States. Given finished combs that are fairly well built in the sections, and the honey will grade according to its whiteness. Indeed, so true is this that it has become one of the most important questions the apiarist can ask: How may the *whitest* combs be secured? Some one has told us that the way is to remove each comb as soon as sealed or finished. Where but a moderate number of colonies are kept, and the bee-keeper can give a good deal of time to the work, it may be helpful to do so; but where several hundred colonies are kept in several yards (it may be many miles apart) it is impracticable to remove honey, as a rule, only by finished supers; besides, we often find large numbers of sections or combs discolored as soon as finished, while on other colonies the supers may remain for weeks or even months without the combs becoming soiled or discolored.

Plain sections that were introduced a year ago, it was claimed, would, with a fence or open separator, produce whiter combs than the old style sections with solid separators. To this claim, doubtless, was due much of the enthusiasm with which their introduction was received. Valuable as these may prove, they are not likely to eradicate wholly the evil of soiled or discolored cappings.



COMB THAT HAS BEEN ON THE HIVE FOR MONTHS WITHOUT TRAVEL-STAIN.

Before discussing the best means of securing the whitest combs, it may be well for us to study the causes of the discoloration of surplus combs. I might first mention *pollen-stains*. Sometimes bees seem either to have all the pollen they need in the hive, or have some antipathy to certain kinds of pollen, and refuse to gather into pellets all that adheres to them while seeking honey, and return to the hive pretty well covered with it, which appears to stain the brood-combs and surplus combs; also if they are built out and partly or wholly filled. This is particularly observable when there is little or no clover honey, and bees work freely on white daisy. Fortunately it does not matter so much, as the daisy honey is quite dark, or inferior, and must be sold as a low grade of honey.

In the national rules for grading honey we find in the first and second rules, honey must be "*unsoiled by travel-stain*, or otherwise." Travel-stain alone being mentioned or called by name, this, presumably, was considered the most common cause of discolored combs. Every bee-keeper is supposed to know just what travel-stain is; but I have sometimes wondered if I do. I suppose it refers to that slight tinge of color we find on or in the cappings of surplus combs, slight near the top of the section, and usually increasing toward the bottom, where it becomes a light cinnamon, or yellow or brown, or it may be more pronounced in the middle of the comb, with less at top and bottom.

From the wording, the supposition is that somehow the bees, in flying through the air or alighting on a flower, or in passing through the hive, get their feet dirty, and, in traveling over the new white combs, soil them. To prove this theory it may be noticed that the lower part of the comb, where travel is greatest, is usually colored or soiled the most. Now, I consider the whole idea of travel-stain as a foul slander. The idea of our industrious insects not being tidy is infamous. It is true that, during winter, dead bees, chips of wax, and perhaps bits of pollen, are allowed to accumulate; but would it not be death to any bee that should attempt to carry out these accumulations, with the mercury at 32 or 40 degrees lower? Do not the bees, with the first warm days of spring, have a housecleaning that would be creditable to any housekeeper? Every nook and corner of the hive is examined, and every particle of dirt removed. Even then they are not satisfied until in the warm summer days they can give the whole inside of their hive a new coat of varnish.

But if this discolored condition of combs is not travel-stain, what is it? That is just what I have been studying for some time, and will try to explain. Let us take a comb or section of honey, with all the marks or characteristics of travel-stain. Near the top it is of quite a light color, but gradually becomes darker, until at the bottom it is a yellowish brown. If we take the point of a knife and carefully lift a cap from a cell near the bottom of the comb we shall be surprised to find the inside of the cap, or the side next to the honey, nearly or quite as dark as the outside. We lift another and another, and find the inside corresponds very closely to the outside in color, constantly changing with the outside. How strange! Can it be that the dirt the bees have left on the surface of the combs is of such a nature as to strike clear through the cappings? Sulphuric acid would hardly do that. Now take a glass of moderate power and look at the cappings, both inside and outside, and we soon get a fair idea of the trouble. We shall find, either mixed with the new white wax, darker wax, or welded to the white wax, little particles of darker wax or propolis, or other substance not easily seen without the aid of a glass.

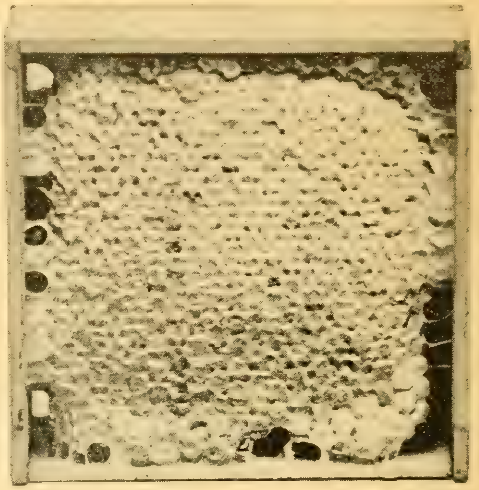
During the past season some interesting facts came to hand, throwing some light on this subject. Upon top of one super was an old cloth, to make it tight, with a blue lining next to the sections. When I took off the super I noticed the blue lining had been gnawed away to some extent by the bees. When I came to pack my honey I found these sections with the combs tinged with blue, some of them on one side only, while others were stained on both sides. Some were stained but slightly, while others were very blue. Except for this blue the combs would have been very white. Had the color been the same as the so-called travel-stain, I think no one would have thought it any thing else. So thoroughly was the cloth torn into atoms that it appeared as a stain on the combs.

Another case occurred where the bees tore coating from enameled cloth or other black cloth, and stained the combs black.

I have sometimes been troubled with yellow cappings of crude wax on my surplus honey, caused by raising up a nearly filled super and placing under it another with thin foundation that was of rather high color. The bees would thin it, or sometimes tear it down and carry it above, and use for capping off the nearly finished combs, giving them an untidy appearance.

Bees often use considerable propolis for capping late in the season when wax is scarce —sometimes in such quantities as to be easily seen by the naked eye. Where do they get the dark wax with which to produce travel-stain? Doubtless from the brood-chamber. Perhaps the cappings of hatching brood furnish the largest share of it. The colors correspond quite closely. Here is a colony that is strong, filling and capping its first or second super. It casts a swarm. The queen's wing is clipped, and the scientific (?) bee-keeper removes her, letting the swarm return so as to secure the largest yield of honey. The hive is full of brood, and hatching at the rate of 1000 or 1500 each 24 hours. All goes well so long as there is plenty of young or matured brood to seal; but after eight or nine days the brood is all sealed, and yet the hatching bees are throwing off from 1000 to 1500 cell-caps daily. There is but little honey in the brood-chamber to seal, or little use in the brood-chamber for the cappings. These cappings are largely pure wax discolored by long use, and it is not at all surprising that more or less finds its way to the super, and produces travel-stain, especially when honey is scarce and but little wax produced in the hive. Doubtless more or less of the wax is taken from the old combs, and mixed with pure wax for capping. There is reason to believe there is a good deal of wax shifted from one comb to another during the warm season when the wax is soft.

It should be noticed in this connection, that, in a hive filled with foundation on which a strong colony was placed in July, and has remained queenless, the combs were built out and sealed in July; and now, after more than four months, the combs have remained free from travel-stain, even in the brood-chamber, and to-day are as white as the most fastidious dealer could desire. A good deal of pollen has been stored in the lower part of the combs; but the pollen has produced but little stain.



TRAVEL-STAIN ON A SECTION HONEY-BOX.

So far as I remember I had less of travel-stain when my bees were allowed to swarm and increase by natural swarming than when I try to keep every swarm strong whether it has a laying queen or not.

Again, it seems to me that my combs were whiter when honey was stored in large surplus boxes than in small sections. I remember very distinctly that, in changing from 2-lb. sections to 1-lb., the combs seemed to have more travel-stain — that is, were not as white as the 2-lb. sections had been. It may have been something in the season, although I feel quite sure it was not.

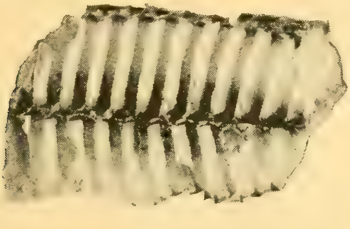
Now, from the foregoing it would appear that we are likely to secure our whitest combs from hives having new combs, even if such hives are queenless. Hives having old combs will be more likely to produce whiter combs with a laying queen than without, especially if the colony is quite populous. Of course, when honey is abundant the combs will be capped whiter, as bees appear to dislike to change honey into wax when it is coming in slowly, and will "rake and scrape," as the saying is, to get wax with which to seal their nearly finished combs, and do not object to brood-cappings or small chips of old wax from the brood-chamber, or yellow foundation wax, or even a little propolis or bits of cloth, for this purpose.

I believe bees will make wax and weld it into comb faster when they can cluster together in large numbers than when compelled to cluster in small bodies; hence, the larger our receptacle the whiter our combs, other things being equal. The value of the open fence for separator comes in here; for, while the combs are built between slats of wood, in small receptacles, yet the partition is so open that the bees can cluster in a whole row, and can communicate with each other almost as freely as though there were no fence between. The past season I had 2000 or more plain sections that were filled between fences, and I know it would not require an expert to see that they would average whiter than those built between solid separators. I believe the fence may be safely recommended as being helpful in procuring the whitest combs.

Without doubt a young queen would be useful, as the bees would be more likely to use the bits of soiled wax they might find in the brood-nest for sealing up the brood than to carry it above for use in surplus combs. Of course, combs should be removed from the hive as soon as possible after they are finished, to prevent dark wax being added to the cappings.

Conditions may vary in different sections of the country. I have written what seem to be the facts in these parts. If others will study this subject in other sections we may be able to establish rules that may be very helpful to us all.

Of the photographs I send you, one is a brood-comb from a hive with new foundation in which a strong colony of bees was placed early in July. Evidently the queen was in some way lost, as no brood was reared. It was broken up in November, the combs showing very little or no travel-stain, after being four months in a populous hive.



The photo of a section shows a case of what I suppose to be the so-called travel-stain, but not an exaggerated case. The stain was slight, but quite apparent. The piece of comb shows stains in center of comb instead of cappings.

Middlebury, Vt., Nov. 26.

[When Mr. Crane was in Medina recently we talked a good deal about this matter of the so-called travel-stained honey. I confess that I myself had believed that discoloration was due to dirt that the bees had carried in on their feet. Of course, I was aware of the fact, as all bee-keepers have been, that comb honey produced next to an old brood-comb is quite liable to be discolored; but I was under the impression that this discoloration was altogether different in character from that of the ordinary travel-stain, so called.

After writing the article Mr. Crane looked over considerable of our honey, with the result that his convictions were, as set forth above, confirmed. Indeed, he showed me the cappings that he had taken from several boxes that showed the discoloration going clear through.

This year there has been more travel-stained honey on the market than usual, owing, no doubt, to the poorness and lateness of the season. In fact, nearly all the honey we have purchased has been rather off in color, although the flavor was good.

There may be some wiseacres in our profession who knew all these facts before; but I am sure that at least a general impression has prevailed that the bees had a fashion of running through their supers with soiled feet, and that it was not wise to leave honey on the hive for too great a length of time.

I have often wished myself that we could leave our comb honey on the hive a little longer, and have been in the habit of leaving that for our own home consumption on the hives longer; and it is a fact past gainsaying that the honey so left acquires a richer flavor. I can not now remember particularly whether the honey that I had reserved in this way for our own use had darker cappings; but if Mr. Crane's theory is correct, the off color, if any, would not be due to the prolongation of the time the honey was on the hive.—ED.]

"DOOLITTLE'S LATEST FEAT IN QUEEN-REARING."

Doolittle's Method of Queen-rearing, in a Nut-shell.

BY G. M. DOOLITTLE.

Before me lies the following letter: "I read in November 15th GLEANINGS Doolittle's latest feats in queen-rearing. I have his book on queen-rearing, 1889 edition. Has he any improvement over plans there suggested? I practice many of his plans; but my experience nine years ago, in rearing queens in hives containing queens, was not very satisfactory. I want the latest. R. WILKIN.

"Newhall, Cal., Nov. 30, 1898."

The above is a letter written to The A. I. Root Company, and forwarded to me to "draw me out," as there seems to be a thought on the part of many that Doolittle is not now practicing, for queen-rearing, just what he gave in "Scientific Queen-rearing" about ten years ago. As the Roots and myself did not think Bro. W. would have any objections to having his letter appear in print they have taken the liberty of publishing it, and I have taken it as a text to tell the readers of GLEANINGS, and Bro. Wilkin in particular, just how those "600 sealed cells from that one colony, the queen laying all the while," as Dr. Miller puts it in "Stray Straws," were reared. These queens (for every cell hatched out a perfect queen) were reared just the same as I gave in the "1889 edition" of my book, and just as I rear 999 out of every 1000 queens, for I practice no other plan, not even saving natural swarming-cells, for, as a rule, they do not prove as good as those reared by bees in an upper story, with a laying queen below all the time.

Now, lest some one may think this is a "puff" for my book I wish to say that I have had nothing to do with the book since it went into the publishers' hands; for at that time I sent it free and broadcast over the world, with the hope that it might do the world some good, not having any pecuniary interest in it since, nor any other, except that it is my "baby." It has been a "loss to know" matter with me for a long time why a few did not succeed with a plan which is so perfect in my hands, and to me seems so simple withal; and all I shall attempt to do in this will be to go over the ground given in the book a little more minutely, as I have no improvements over what is there given. Since I gave the book to the world I have paid very little thought to queen-rearing, my whole life and experiments since then being put into studying about the non-swarming of bees; and if I ever succeed along this *non-swarming* line, Providence sparing my life, I shall give that to the world in book form also. With this long preliminary I will proceed to tell "just how I rear queens."

When spring opens I select one of the strongest colonies I have in the yard, and one having a queen reared the summer before, as I wish one which is not liable to fail in her egg-laying powers before the season is over, as that *laying* queen below has very much to do with queens of the *best* quality, in my opinion.

About the 10th to the middle of May I go to several hives till I find the number of combs of *sealed* brood that are necessary to take the place of those having no brood in them in the hive I have selected, which is generally from two to four. These combs of brood (without bees) are now set in the hive, when in a week or ten days I have a colony strong enough to commence operations. Perhaps I should say just here that I use nine Gallup frames in this hive, which is a *chaff* hive, and that I bring from my out-apiary, the fall before, the queen to rule over this hive, which is a mismated (or "hybrid") queen, as generally called, for I find that hybrid bees, showing about as many black bees as those with yellow bands, will build and complete nearly double the number of cells as will pure Italians, and seem to take to this line of work better than any other. I usually bring several queens of this class to take the place of those sold, and then select the strongest colony having one of these queens. As soon as the selection is made the rest are used in the out-apiary again. I tell this only as I wish to give every thing just as I do it.

As soon as the colony is strong enough to go into the upper story I take two combs from below, having *mostly* eggs and unsealed larvæ in them (don't take any drone larvæ, as drones above a queen-excluder are always a nuisance), and in their places put two combs of sealed brood from other hives, as we wish all the bees possible thus early in the season.

I now put on top of the hive a hive having a queen-excluder *nailed* to its bottom (if thus nailed we never have to touch the excluder if we wish to remove the upper hive during the season), as it always comes off with the upper hive, and in the center of this upper hive put the two combs of brood, four frames well filled with honey, a division-board feeder, and two dummies made from inch or ⅞ lumber.

When about two days have elapsed for the colony to adjust itself to the new conditions, it being fed about a pint of *thin* sweet every night, if honey is not coming in from the field, they are ready for a batch of prepared cell-cups, as given in my book. To tell all about how to prepare these would be too long for this place; but all can find all about the matter by turning to chapter 7 of the book, and I could not tell that part any better were I to try it over again.

Before going for the royal jelly and the larvæ to transfer into it, I stop at the hive, take out one of the dummies, shove the frames that way till I leave a frame's space between the combs of brood, when the cover is put on. As a rule it takes me from 15 to 20 minutes to get the royal jelly, the larvæ, put the jelly and larvæ into the cell-cups, and get the now prepared frame to the prepared hive. I now remove the covering (which is a quilt, with a 4-inch sawdust cushion over it, and a hood or cap eight inches deep over all), when I find the space left for the prepared frame completely filled with bees—so much so that I have to work the frame slowly up and down in lowering it, so as to cause the bees to run out of the way. I don't know that causing the bees to cluster in this vacant space between the frames of brood has any thing to do with the matter; but it has always seemed to me that they are better prepared with royal jelly and for queen-rearing by doing so. Three days later I go to the hive again, take out the other dummy, draw the frames to the side of the hive till I come to the first frame having brood in it, when I lift the frame of cells, take off one or two of them, for the royal jelly needed to start the next "batch," when the frame of cells is placed in the vacant space behind the frame of brood, caused by taking out the dummy and drawing the others along, thus preparing the same place for the next frame of prepared cell-cups which the first one occupied, and when all ready it is placed there as was the first. Three days later a frame of honey is taken out from the opposite side from which the last dummy was taken, the frames again drawn along till we come to the frame of brood, when the last prepared frame of cells is taken out, one or two taken off for royal jelly, and the frame "jumped" to the outside of the frame of brood, which gives room for the third prepared frame between the frames of brood again, where it is placed as soon as prepared.

As I do no work with the bees on Sunday I time it so that no cells have to come off that day, and so four days now elapse before I put in another prepared frame, which makes ten days from the time we started, so that we really have only three prepared frames every ten days.

I now take out the frame of "ripe" cells, or the first one prepared, and distribute them where wanted, getting the bees off, etc., as given in chapters 8 and 9 of the book, when I lift out the two frames of brood, look them over to make sure that the bees started no queen-cells on these frames (unless this is done we *may* have a queen hatch when we least expect, and destroy all of the cells on the other prepared frames), when these two frames of now sealed brood are "jumped" over behind the two frames of cells now remaining. I now take out a frame of honey on each side, and shove all the frames along toward either side of the hive, so as to make room for two frames containing eggs and larvæ, taken from any hives in the yard (generally from nuclei when under full headway later on), which are placed in the center of the hive again, as the first two were, being left apart for the fourth prepared frame, which is now fixed as was the others, and put in.

This tells you all there is of it, only that you keep right on in this way all the season, and the result should be with you, the same as I gave on page 849 of Nov. 15th GLEANINGS. I see the Roots use colonies preparing to supersede their queen, but I have not used such a colony since the book was published, and do not see why others can not succeed as well as I do with a *good* laying queen below, for I do not believe that the raising of queens in this way is any "trick" at all. Colonies worked as above given are quite likely to swarm under the pressure of bees given by their own queen and the inserted brood; and when they do so I simply take off the upper story, cut off all queen-cells started, cage the queen for ten days, cut the queen-cells again, and allow the bees to liberate her by eating out the candy from the stopper, as given in January 1st GLEANINGS for 1898.

As to feeding: I feed generally, to start with, till the frames in the upper story are quite well supplied with honey, unless honey is coming in quite freely from the fields, after which I rarely feed at all unless at times of real scarcity. That is, when enough is coming in from the fields so that no robber bees are about looking into hives as I open them, I do not feed, only for the first ten days, but feed at all times when nothing can be obtained from the fields.

Then there is a bare possibility that the deeper Gallup frame has something to do with it, but I think not. I have never tried so rearing queens at the out-apiary, for I use only the *one* colony at home, bringing brood from the out-apiary, if I wish to breed from any queen there.

If I have failed to make all plain, don't be afraid to ask questions, for on *good queens* hangs the greatest success in apiculture.

Borodino, N. Y., Dec. 30, 1898.

APIS DORSATA.

A Correction by Mr. Benton.

It is unfortunate that, in attempting to correct the item which you quote in GLEANINGS for Dec. 15, 1898 (page 939), from the *American Cultivator*, you should leave the subject about as badly mixed as before. Allow me to suggest a little more charity toward the editor of an agricultural journal, when the editor of a bee-journal—even of GLEANINGS itself—in an attempt at correcting the former on a point pertaining to the history of the industry, can not make half as many statements without blundering quite as badly.

Immediately below the quotation which you made from the *American Cultivator* is your effort at correction, which reads as follows:

"Now, there may be some truth in the above, but certainly there are a lot of mistakes mixed in with the truth. Mr. Benton went originally to the Island of Cyprus, in the Mediterranean Sea. Then in pursuit of *Apis dorsata* he went on to India, and then south to the island of Ceylon. But, according to our geography, the Philippines are a very great distance from Ceylon and India, and twice as far from Cyprus. Mr. Benton did not go to the Philippines. I have thought best to copy the above, because just such blundering statements are the ones that go the rounds of the papers."

Although it is now eighteen years since I made the journey which Editor Root mentions, and though, since then, I have made many others, the recollections of that particular one are still quite distinct; nor do I need, for that matter, to depend upon memory alone, for, besides certain published accounts which appeared at the time, some in European and others in American apiarian journals, I have memoranda and notes of travel which settle beyond doubt the question of the route taken. Incidentally I must remark that it is a rather "queer" geography you study if it teaches you that "the Philippines are twice as far from Cyprus" as Ceylon is! It is about 4500 miles from Cyprus to Ceylon, and 2800 miles from Ceylon to the Philippine group. Nineteen days (exclusive of stops) were at that time usually consumed by the most direct route in making the first-mentioned journey, while ten to eleven days sufficed for the trip from Ceylon to the Philippines. And the distance from the Malay Peninsula, forming a part of Farther India, to the Philippine group, is but 1000 miles.

As to the route taken in my journey, I wish merely to state that it was not first "to India and then south to Ceylon," nor have I ever known of any one's making that statement until you did so. From Cyprus I went first to Syria and Palestine ; thence I proceeded by way of Egypt and Arabia to Ceylon, examining and collecting the bees peculiar to each region visited. From Ceylon the journey was continued to Farther India, Sumatra, and Java, that having been the original intention when I started from Cyprus. On the large island of Java, 600 miles long, I made journeys in search of *Apis dorsata*, east, west, north, and south—in fact, everywhere—by rail, by coach, and on foot, over plains, plantations, rivers, wooded hills, into the wildest jungles, and up the most rugged mountains and active volcanoes, even to a height of 10,000 feet; but neither secured nor even saw any of the giant bees, although they had been supposed to be plentiful on that island—so plentiful, in fact, that certain German publications had, whenever referring to them, always called them "the large bee of the Island of Java." On my return I again visited Farther India and Ceylon, and in the interior jungles of this island secured four colonies of *Apis dorsata* which I brought with me alive eighteen days' journey by fast steamer to Syria. These giant East-Indian bees showed not only great vitality under very trying conditions, but also gave indications of qualities which I think it worth while for the intelligent bee-keepers of America to investigate further and without prejudice.

FRANK BENTON.

Washington, D. C., Dec. 31, 1898.

[While the mistakes may have been rather provoking to friend Benton, I really feel that they did him no injustice. I meant more to mention the places he visited than the exact order in which he reached them. The blunder I sought to correct was that he went to the Philippines to get *Apis dorsata*, instead of to Ceylon and Java. So far as the distances are concerned, I referred to air-line or straight distances, while Mr. Benton evidently refers to the distance one must travel to reach the several places mentioned, which is quite a different thing. When blunders result in bringing out so interesting a letter as the above from one who has traveled further than any other man ever did for knowledge regarding bees, I feel pretty well reconciled, and hope friend Benton will pardon any discrepancy between my statement and his.—W.P.R.]

BATTLING WITH FOUL BROOD.

Ten Minutes' Boiling of Diseased Honey not Sufficient to Kill the Germs; a Valuable Article.

BY J. A. BUCHANAN.

Four years ago foul brood made its appearance in my home apiary. This was expected to occur at any time, as we buy honey from bee-keepers in nearly every State in the Union. Each colony becoming affected was destroyed, the honey extracted, and, if good, was sold, the combs made into wax, frames boiled, and stored for future use. This apiary of 80 colonies was wiped out within three years after the first appearance of the disease.

By way of experiment, twelve colonies remaining were taken from their combs and given new clean hives, there being small starters put in the frames, and after the bees had built combs three days these were removed, and full frames of foundation given. This was in July, at which time but little honey was to be gathered. In order to have the hives filled with comb, brood, and stores for winter, the bees were fed syrup with enough honey added, which was taken from out-apiaries free from disease, to insure against granulation.

The time arriving when larvæ and sealed brood would be found in abundance, it was with no small degree of interest that examination was made of the brood-nest. Beautiful sheets of perfectly healthy larvæ greeted my eye as comb after comb was lifted from the hives ; and as the thousands of young bees left their cells not a trace of foul brood could be found.

About this time I read in some paper—may have been GLEANINGS—an article stating that the spores contained in foul-brood honey could be destroyed by boiling for a few minutes, after which it could be given to the bees again with perfect safety. To me this appeared logical and reasonable. As I had a few 60-lb. cans of diseased honey that was too dark to sell I was glad to utilize it in giving it back to the bees. Fifty pounds of granulated sugar and twenty pounds of water were brought to a boil; then two hundred pounds of this diseased honey was poured in, and all brought to a boiling-point, and kept at this for not less than ten minutes.

The greatest care was taken that not a bee could get access to any honey until it had been boiled. This honey was now safe for bees, and each colony was fed on this until well supplied for the winter. Of course, brood-rearing was stimulated by this liberal feeding; but there was something else stimulated, and every colony was again soon rotten with foul brood; and you may know I was stimulated up to a point where I could have taken that fellow who told "all about" how to kill foul-brood spores by boiling honey five minutes, outside the camp and stoned him off the earth.

As further evidence that this honey so treated was the sole cause of the trouble I had three late swarms, six miles away, in an out-apiary, that were light in stores. A quantity of this honey was taken out there and fed to them. All three soon had the disease. These were at once brought home ; but as it was late in the fall, and having plenty of bees, these three came through the winter in fair shape ; and, notwithstanding their diseased condition, they were ready to divide by the middle of May.

They also furnished me with material for further experiment, with a view to learn how to stamp out the disease with the least possible loss to the bee-keeper.

By stimulative feeding, and the best of care, these three colonies had all cast swarms by the 20th of May. The swarms were allowed to build combs two or three days, when these were taken away and full sheets of foundation given.

As fast as the young queens in the parent colonies hatched they were caged in order to hold the bees together until about all the brood that would hatch had done so. Then their combs were taken away, and bees treated the same as the swarms. Evidently there could be no trace of foul brood left; but as there was no honey to speak of in the field, my bees could not make any advance unless fed. I had a good deal of honey yet, but full of spores; so I decided, just to find out something further, to feed this honey back to the bees. Now, don't say, "What a fool!" until I get further along. I put a large boiler on the furnace. I put in water, then sugar; this was done to prevent the honey afterward put in from burning, and to thin it somewhat. The honey and all was boiled for one hour, all the while keeping the scum arising skimmed off. When strained and cool it was fed to the bees. Any more diseased brood? Not a particle. In a few weeks each colony was again divided, and I had twelve strong stocks from the three diseased ones I had to work from in the spring.

The advice to burn hives, frames, bees, and honey is all wrong. I feel sure that, with the experience I have had, this terrible malady can be stamped out with but little loss to the bee-keeper, if it is only undertaken in a determined, painstaking way.

Your remarks, Mr. Editor, in footnotes to Dr. Miller's article, page, 876, Dec. 1st, have called out what I have written above.

Holliday's Cove, W. Va.

[On page 876 Dr. Miller, on the authority of Mr. Genonceaux and Dr. W. R. Howard, stated that it was not safe to feed infected honey that had been boiled only 15 minutes; and he further added that later experiments on a more extensive scale by Bacteriologist J. J. McKenzie were to the same effect. These scientific experiments not only showed that 15 minutes' boiling was insufficient, but that even 45 might not be enough. In reply to this, I strongly intimated that science was at variance with practice, as many bee-keepers had had honey boiled only a short time, and yet no bad results followed. I then said: "This is an important matter, and we can not afford to make any mistakes. If there is just *one* bee-keeper who has found that five minutes' boiling is not enough, then we ought to advise boiling for at least an hour to make sure."

This was a challenge, for it seems to have been accepted by at least one bee-keeper whose testimony we can not doubt. His statements, together with those of the scientists above named, convince me that it is dangerous to use foul-brood honey that has been boiled for less than an hour. Nay, I will go further: I believe one will be taking risks if he feeds such honey if it has been boiled for less than *three* hours.

I am willing to admit that this is contrary to my own teachings and recommendations in the past; but when I see myself so plainly in error I am willing—yes, glad—to have to "right about face."

On the other hand, I feel just a little chagrined for the part I have borne in insisting that a few minutes' boiling was sufficient. But I believe I was backed by the experience of such men as R. L. Taylor, Thos. W. Cowan, D. A. Jones, and dozens of others. But just *one* instance, where ten minutes' boiling was found to be insufficient to prevent the spread of the disease, is better than dozens of instances where the ten minutes' boiling was found to be attended with no bad results. While one may drive safely within an inch of the precipice, it is the part of wisdom to drive just as far away from the edge as possible, even if we have driven hundreds and perhaps thousands of times along the very brink.

This article, it seems to me, ought to be scattered far and wide, for it is high time we were unlearning some of our old knowledge on the question of foul brood.—ED.]

A PLEA FOR THE COLD-BLAST SMOKER.

Hot Smoke vs. Cold; Construction of the Ordinary Cold-blast Smoker Faulty; How it should be Remedied; the Modern Improved Shipping-cases.

BY C. DAVENPORT.

One of the cheapest and most effective methods known for subduing bees is by the use of smoke; and with but few exceptions it is the means exclusively used for this purpose; but I believe smoke alone is much more efficacious for the purpose of inducing bees to fill themselves with honey than smoke and hot air combined are; and while, from private correspondence and conversations with bee-keepers, I know I am not wholly alone in this opinion, I do not remember ever seeing any thing in print to this effect; but I have that which is opposite. The effect of a blast of hot air on bees is to make them appear crazed or frenzied, either with rage or fear—perhaps it is both—and, instead of trying to reach and fill themselves with honey, many of them, if it is so they can easily, are apt to take wing and hover annoyingly near the operator, if they do not make a frenzied attack, which they are very apt to do in a short time.

The effect of smoke and hot air combined is, of course, different still. The same effect can be noted, but in a much less degree. The effect of smoke alone is to excite and alarm them, either in a less degree or different way; for, instead of rushing and flying frantically about to avoid it, their one desire seems to be to fill themselves with honey. The effect of smoke combined with a blast of cold air is about the same. For these reasons I prefer a cold-blast smoker; for, while a hot-blast one is more effective for the purpose of driving bees from a super or off extracting-frames, especially if the fuel is of such a character as to create a good deal of heat as well as smoke, this, at least with any one who uses escapes, is of much less importance than the main purpose of inducing bees to fill themselves with honey; and experiments made, as well as the use of both hot and cold blast smokers, convince me that a cold-blast smoker is more efficacious for this; and while it may be said that, if a hot blast is held some distance away, the effect is the same as a cold one, there are many times when it is not practical to do this, especially in a strong wind; and in other cases if it is held far enough away to give the effect of a cold blast the strength of the blast is not strong enough to drive the smoke as far as it may be desired it should penetrate; and I believe the continued and especially the injudicious use of a hot-blast smoker in a yard has a more injurious effect on bees, not only in disturbing them worse, with the consequent effect of less honey being gathered, but they appear to me to become crosser, more excitable, and more difficult to subdue and handle; and while there is no doubt of this in my case, my manner of handling bees makes this more apparent and real with me than with those who follow the orthodox method of blowing smoke in at the entrance of a hive, then waiting awhile before operations are commenced.

If what I have said so far has been carefully read it will be understood why, when I explain that, as a rule, when I desire to handle a colony, the cover is removed and operations commenced at once without any preliminary smoking and waiting.

Another thing in favor of cold-blast smokers or breech-loading ones is that they are easier to fill and light; for instance, the directions that accompany a well-known make of muzzle-loading smoker say that, when it is desired to start a fire in one, we are to get a few coals of fire out of a stove and drop these in first; then the fuel on top of them. This is an effective way to start a fire; but at my ranch, in warm weather, when a smoker is most in demand, there is very seldom a fire in a stove; for I have not one kind of queen; and instead of cooking my own meals I prefer to pay for the privilege of taking them at a neighbor's. But if the case were different, and I had as many of these queens as the newly elected member of Congress from Utah is said to have, and a like number of stoves going, I often wish to use a smoker for so short a time that I can light a breech-loader and have the work finished or well under way before a fire could be started in a muzzle-loader, provided the directions accompanying it were practiced, and it is to be presumed that the makers of an implement understand the best method to be followed in using it.

The fuel for a smoker that I prefer, and one that is easily obtained here, is flax straw. This, if free from foreign matter, such as weeds and the like, and thoroughly dry, is easily lighted with a match, gives a good volume of smoke, and will seldom go out until it is all consumed; and in a smoker of the right size, properly made, one filling will last from an hour to an hour and a half, depending on the amount of smoke required in the work being done. While there are cold blast smokers in the market, there are none that are properly made. While the principle on which the Clark is made is effective, the barrel is too small. It should have a fuel capacity at least equal to any of the leading makes of muzzle-loaders, and the fire-chamber should taper but slightly, if at all; and, most important of all, while it should remain a breech-loader it should have a detachable nozzle so that, by removing it, the holes in the portion in front, as well as the air-tube, could be easily cleaned of soot and the like. As now made it is a difficult matter to clean them, and these parts frequently need cleaning.

I believe that if a smoker were made on these lines it would, when its merits become known, supersede the sale of any now made, especially when the relative effects of hot and cold smoke are carefully noted by bee-keepers.

While my opinion is that the manufacturers of our goods will not encounter such a rush for supplies during the coming season as they did the past one, I believe the firm GLEANINGS represents will notice a gradually increased demand for their shipping-cases owing to late improvements in their construction. Heretofore I have used but few of their make, for I did not consider those made for standard-size sections wide enough, for I want a case made so that, after the last row of sections is in, there will be room for a follower, with a small space between it and the back side of the case. This space is packed with folded paper, and it is much easier to pack honey in such a case so the sections are held firmly together, which insures greater safety in shipping or in carrying them around; and the dealer who retails from the case finds such a one more convenient, for, after removing the follower, there is room to remove and replace a section from a full case easily. The past season I ordered 50 of the Root Co.'s make, and found them not only as wide as I desired, but also supplied with followers; and another decided improvement I found in their construction was that the upper strip that holds the glass in front, as well as the back side of the case, came up just even with the end pieces, which allows the cover to project out, or cover the whole of the case instead of fitting down between the back and front side, which it did as they were formerly made; and when made in this way, no matter how accurate the workmanship was, there was some chance for dust to enter the case, even when the sections were covered with paper; for the back side of a case, when it is packed, naturally spreads or springs back enough to leave a small crack between it and the cover unless the latter reaches over all. As these cases are now made, I for one can see no chance for improvement unless to have the paper a little heavier and cut a trifle larger, especially the pieces to put over the top of the sections; but this is a small matter; for, except for appearances when opening a case, it is immaterial, with the case and cover as now made, whether the sections are covered with any paper at all.

Southern Minn.

[It may be you are right; but my own experimenting, and much of it on a large scale, has led me to opposite conclusions. After experimenting, and trying all sorts of construction, and having made and thrown away dozens and dozens of different smokers, I came to the conclusion that the hot blast suited me the better. This conclusion was based on the following: Greater volume of smoke, for the reason that the cold blast will not produce a hot enough fire to produce a smudge that is conquering to the fullest degree. It takes heat, with most of the fuels obtainable, to produce a great amount of smoke, and to get that heat it requires a forced draft *through* the fire. I constructed a large number (or, rather, I had them constructed) in our shop, of different smokers. Some of them were almost on the same line as is described in your letter. I found, when I got the fuel in the cold blast burning briskly after much coaxing, that I could throw as much smoke as with the hot-blast smoker; but it took too much working of the bellows, and the effort and time wasted were too great. In other words, I could, with half a dozen whiffs of the hot blast, produce *more smoke* than with five times the number with the cold blast.

Years ago the value of *cold* smoke was discussed, and it did seem to me that smoke pure and simple, without heat, would be decidedly preferable; but in tests that I made I found I could conquer bees sometimes, even with hot air alone, without smoke. As a rule, hot air and smoke combined were more effective than either one of them alone. In my experiments I used some vicious Cyprians—bees that were almost unconquerable. I know that once or twice I tried to subdue them with a cold-blast smoker; but I had to give up the job, and then I went at them another time with a hot blast, and conquered.

The first four or five years of my experience in the apiary was in the use of cold-blast smokers exclusively. I was then of the opinion that this was the better principle; but later, after I began using the hot blast, I found that the smokers of this class would give their greatest smoke with four or five whiffs of the bellows, and consequently were sooner ready for work.

Now as to the construction of smokers you refer to. I have made them with larger tubes and with smaller tubes; with tubes removable; with fire-boxes of the same capacity as the hot-blast arrangement, but with results as above given.

We are now and have been for years selling both kinds of smokers; but I have had a feeling that the cold blast was so inefficient, as compared with the hot blast, that we owed it as a duty to the fraternity at large not to offer the cold blast at any price. This feeling has not been shared by my father; but the different boys who have come into our apiary to work have been given their choice of smokers, and I think that, without exception, they have selected the hot blast after a few days' trial of the two kinds of smokers.

The modern shipping-case to-day as sold by us is the result of the combined thought of bee-keepers and commission men alike. In my travels among bee-keepers I usually try to get "pointers," and the shipping-case has received, among other things, its fair share of attention. It was Capt. J. E. Hetherington who first began the use of cleats in the bottom of the case, with paper tray, I believe. I think he used cases, thus prepared, for years before the general fraternity came to know them. Finally a prominent commission house that I visited urged upon me the very great importance of having cross-cleats in the cases, saying that, if we once began to make them in that way, every manufacturer in the country would be forced to make the same kind, as bee-keepers and commission men alike would be quick to see their merits. I went home, and, as a result, shipping-cases were sent out having cross-cleats and paper trays, and the result was almost wonderful. We got orders for shipping-cases from sources hitherto unknown to us; and the following year all the manufacturers made cases on these lines.

The follower was made, not so much to facilitate the removal of sections as it was to permit of the use of different widths of sections in the same case. The time was when every width of section required a special case; and the dealer and manufacturer were put to no little annoyance, as every odd width required an odd size. Now a few standard cases will take in every sort of section, so far as width is concerned, on the market. In some cases there may be more folded paper back of the follower—in others, none at all. In still others, the follower may be omitted entirely. —ED.]

RAMBLE 159.

Preparing Chunk Honey for Market; Experimenting with Solar Wax-extractors; Size and Shape of Brood-nests.

BY RAMBLER.

A poor season for the production of comb honey always leaves more or less of the sections only partly filled and partly capped; and many of our sections having drawn combs that were not leveled down properly presented a surface quite dark in appearance. In fact, we had but a small amount of strictly first-class comb honey, and that was stored in sections that were leveled down to within about ⅜ inch of the septum.

The late Mr. Levering had a fair sale for honey put up in round tin cans holding from five to six pounds of honey. Comb honey was cut from those 12-lb. boxes, and fitted into these cans, and extracted honey turned in to fill up the vacant space. Having several dozen of these cans on hand, our incomplete sections were taken in hand, the honey cut out and fitted into the cans, and it would not do to tip these cans sidewise at too much of an angle, for, being provided with a loose cover, the honey was liable to drip from the top. Those who handled the honey in these cans complained about this feature, and claimed that much honey leaked out when the cans were taken to a distant market.

The cans, and how we took the sections *in hand* to fill them, is shown very well in the photo.

As an improvement upon this style of package, the judge sent for several dozen five and ten pound cans with a screw cap. These worked very well for extracted honey; but it seems that people will *never* become educated to the fact that honey will candy; and right here in Scott Valley, where so much honey had been sold, there are people who do not know how to liquefy it. That some foreign countries demand candied honey is evidence that they have been subject to a long training, or else they consume more honey, and are more familiar with its characteristics.

When the judge and I came to this apiary we found that there was no sun extractor for rendering wax. The only extractor for this purpose was the little steam extractor that is designed to be placed on a stove. These steam affairs may be useful to a bee-keeper who can count the number of his colonies on the fingers of one hand; but in an apiary of one or two hundred colonies they are worse than useless, for it takes too much time to get the wax out of them.

The judge and I agreed that we should have some sort of sun extractor. We knew it would work well here; for, although we were in a mountain region, we found the sun's rays pouring down upon us for a few days at the rate of 106° in the shade. Ordinarily, in June and July it was from 80 to 100—plenty of heat for our purpose.

During some odd moments in the past I had been thinking of making a wax-extractor that would melt the honey from cappings and not discolor it. The ordinary sun extractor in our hot climate heats the cappings so intensely that the honey is literally boiled; and even white sage honey is colored to the hue of ordinary molasses, and the original flavor is ruined. My idea was to overcome this defect in the sun extractor, and make it render white honey from white honey cappings.

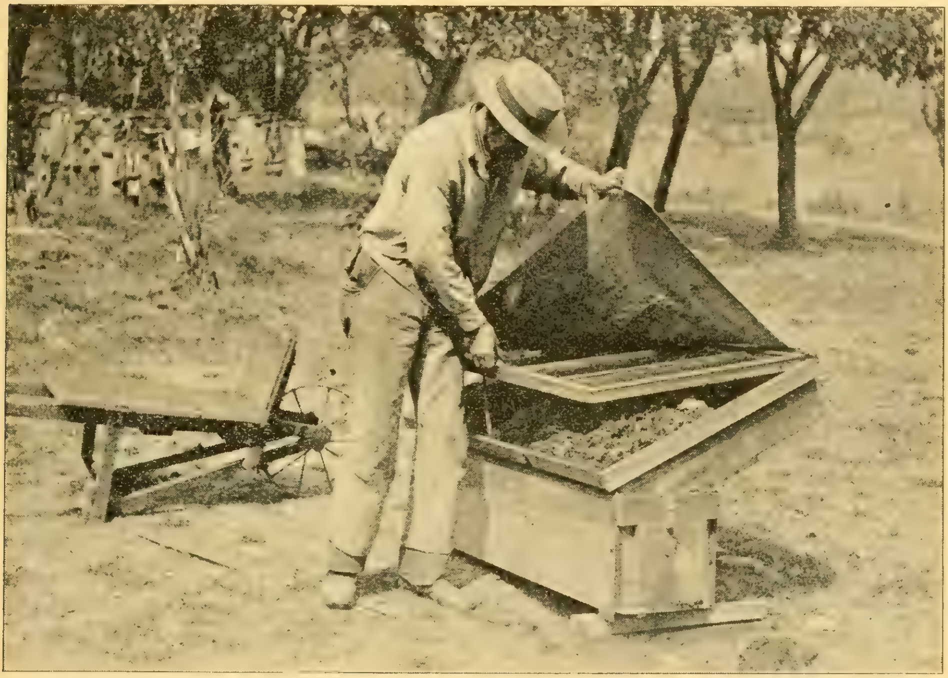
The ordinary California wax-extractor, of whatever length, delivers honey and wax at the end. I reversed the incline, and allowed the material to run out at the side. The extractor I constructed was 4 feet in length and 2 in width, while that portion holding the cappings was 18 inches; and the honey dripping off the side had only the 18 inches to run, while, by running to the end, it would have 4 feet, and hence much more heat to endure. The photo will give an idea of the way the extractor operates. Honey is so thoroughly incorporated with the bits of comb when we take it from the uncapping-box that no amount of ordinary straining will eliminate the honey. A great amount of heat, or mild heat long

CUTTING OUT COMB HONEY AND CANNING IT.

continued, is the only remedy, and I found that my side delivery of the honey was inadequate to save the honey from being somewhat darkened. While conducting my experiments I noted that, one day, when there were light clouds obscuring the sun, the honey rendered out that day was not darkened at all. The heat was just right to melt the honey and not render the wax. It occurred to me that, if I could put a cloud over the extractor on a bright day, it would work fully as well as clouds a mile high. Therefore, referring to the photo, you will see my cloud which on that day was improvised from a heavy gunny sack. I found that the degree of heat on one day needed a heavier covering than on another day; and now, to make the heat more uniform, I would secure my cloud a few inches above the glass, with a large uncapping-box with ample drainage, and a little fussing with the shade to the extractor. Nearly all of the honey can be thus drained out and not discolored. There is a small per cent that will stick to the cappings, and come out only with the wax, and is much discolored.

Running the contents off at the side makes it necessary to provide a long box in which to catch the honey and wax. As a further improvement to my sun extractor I would make it still wider, and provide for caking the wax by sun heat.

There are others who are experimenting in this direction; and if they would have their ideas illustrated and described I am sure the readers of GLEANINGS would be benefited. I had a large amount of old scraps of combs, and combs from hives that were riddled with moths. They were all rendered through this extractor. The slumgum was saved, and at the close of the harvest this was boiled thoroughly, and from a large amount of it I secured 10 lbs. of wax. It paid well for the day's labor.


RAMBLER'S SHADED SOLAR WAX-EXTRACTOR—MANNER OF WORKING.

With the last extracting of honey I delved again into the brood-nest of those tall hives to find out if the bees had filled those empty frames, and to see if there was a good supply of honey on hand for the winter. When we try to get at the brood-chamber of this hive we find it no small job. The upper extracting-chamber can not be lifted off, so we have to take out those frames one at a time, and place them in a box where robbers will not molest them. I was pleased to find the bees had filled a good share of those empty frames that were put below, and also filled them with honey. The bees in those tall hives had evidently provided ample winter stores before going into the supers. There were quite a number, however, that neglected the empty frames, and followed the old combs into the upper portion of the hive. In all such cases a frame filled with honey was put below.

From my experience with these hives I think bees are sure to put more honey into a brood-chamber 15 inches deep than they are in a shallow hive. The brood in these deep frames, even in the height of the breeding season, hardly ever came to the top-bar of the frame, and never to the outside frames. There was little inclination with the queen to enter the extracting-chamber. The result might be different in a good honey-flow and with young and prolific queens.

The few Langstroth hives in the apiary were better filled with brood, and produced at least 15 per cent more honey than the Harbison worked either for comb or extracted honey, and still they were well filled with honey for winter.

Having in mind the discussion about large hives I was particularly interested in a couple of 12-frame L. hives. These large hives were provided with supers of the same depth, and the bees seemed to require the entire summer to get into them, and then only the center combs were filled with honey. I can readily see that a shallow super would have worked better.

There were also about the same number of hives with frames the length of the L., but 12 inches deep, and 10 to the hive. The result from these hives was excellent, and would have been better with a shallow super. I think location has much to do in settling the question, and it will hardly do to put down an iron-clad rule as to size for all localities.

The results of our season's work were 11,683 lbs. of honey and 160 lbs. of wax, or about 50 lbs. of honey to each of the 233 colonies that were worked for honey. Our gross sale of honey was $628.40. For the small amount we sold in the home market we obtained 7½ to 10 cts. The greater portion we sent to San Francisco. It was nearly all best grade, and brought 6 cts. per lb. The 2½ tons of lower grades brought 5½ and 5¾c. Our 160 lbs. of wax was sent to Tacoma, and netted us 25 cts. per lb. at our station.

Now I will show the disadvantage of working an apiary 27 miles from a railroad, and several hundred miles from a market. Our five-gallon cans cost us 50 cts. per case in San Francisco, and it cost 28 cts. per case to get them put down in the apiary; total, 78 cts. per case. In moving our honey out to the railroad it cost us ¼ cent per lb., and 1$\frac{16}{100}$ cts. more to get it to San Francisco, or a total of $1 41 per 100 lbs., while car lots can be sent from terminal points to Chicago for 75 cts. per 100. In the above case the railroad men apply their rule of charging all the traffic will bear, and there is no competition to prevent.

The late Mr. Levering sold all of his honey in the home market a few years ago. His comb honey sold for 30 cts. per lb., and the price gradually dropped to 8 and 10 cents. Mr. L. would take the entire year to work off his honey. He also had a team with which to reach distant markets, such as Ashland in Oregon, 25 miles away. Our only resort in a similar sale was to hire teams to take the honey out, not only into Oregon but into the various mining towns. The trip would take several days, and with a load of one ton of honey, and a week of teaming at $2.50 per day, the price would be diminished to less than we could get in the city markets. The only way to work up these local markets is to stick by them all the year round, and have a good team to take you hither and yon over the steep grades. I have described this matter minutely, for I have received several inquiries about this country for a permanent location, and shall have something to say about the matter, and what other bee-keepers in the valley say, in my next.

HEADS OF GRAIN FROM DIFFERENT FIELDS

SWEET CLOVER, ONCE MORE.

[On page 893, Dec. 1, I gave place to an attack on sweet clover that I felt sure at the time was very severe and one-sided. On page 19 of our last number we gave a reply to it that may seem a little severe. But this thing is getting to be a matter of some importance. If the efforts to have sweet clover classed among the noxious weeds come from only a few who seem to have an unreasonable spite against the plant, the sooner these people are straightened up the better. Here is something from another friend in regard to the same matter :—A. I. R.]

Dear Mr. Root:—If the controversy on sweet clover is not over I offer a little more testimony in favor of it. Mr. D. Danielson, of this vicinity, is a wide-awake farmer and bee-keeper. He raises melilotus right along, and cuts it when in bloom, for hay. He considers it excellent feed for horses, as well as a good bee plant, and does not deem it a noxious weed in this fertile soil. Mr. C. Jantz, of Marion, a farmer and bee-keeper, has been raising sweet clover for several years. He tells me that he tried to get a stand in his pasture, hoping the cows would leave enough so as to reseed it ; but they, instead, hunted it and kept it cropped down close to the ground. He also says that the milk and butter from sweet clover have a most delicious flavor.

I saw a patch of it at Mr. Jantz' last summer, that was, without stretching it an inch, ten feet high. I have tried to make it choke out unseemly patches of sunflower and ragweed ; but this, I think, it can't do in this country. The great leaves of these plants cover the ground so completely that nothing else can come through. Though we have some nice fields of alfalfa hereabouts, I fear it is a little dry for this kind of clover ; and I think that, when sweet clover shall become better known, it will prove an excellent plant for this region. S. J. HARMELING.

Marion, S. D., Dec. 27.

And here is still another :

The honey crop in this part of the country was very light. My crop was 1500 pounds of comb, 160 extracted. The only nice honey I got was in plain sections, from 114 colonies.

Sweet clover is one of the best honey plants that I have. I am glad that some people don't know how to kill it. I have no trouble in killing it where I don't want it to grow. Stock eat it here. When pastures are short the stock are herded on the road, and they eat it as quickly as any thing else. I don't wonder that Mr. Sawyer, of Yorktown, has trouble in killing it. I saw his place last fall, and I didn't think he had enterprise enough to kill it. A. L. Kildow.

Sheffield, Ill.

SWEET CLOVER; AN ARGUMENT FOR THOSE WHO INSIST THAT IT IS A BAD WEED.

When I began keeping bees, 15 or 16 years ago, there was an abundance of sweet clover growing along the railroad near where I lived; and although I knew very little about bees I took from 75 to 150 lbs. of honey per colony. A law was passed compelling the railroads to cut all bushes, weeds, etc., along their tracks, and they soon destroyed the sweet clover. Then my honey-yields shrunk to from 25 to 50 lbs. per colony, notwithstanding my increased knowledge of the business. Since coming here (three years this coming spring) I have sown 140 lbs. of sweet clover, and have very little to show for it. I have about 20 acres on my farm that will raise fair crops of rye, corn, buckwheat, etc., and I am willing to pay $100 to have it well seeded to sweet clover. Here is a chance for Mr. Lewis A. Sawyer, or some other sweet-clover kicker.

H. J. Northrup.

Jonesville, N. Y., Jan. 5.

DANZENBAKER'S CORRECTIONS; FINE POINTS IN COMB-HONEY PRODUCTION.

The symposium on fences and plain sections in Dec. 15th Gleanings is worth 10 years' subscription to any unbiased reader owning a half-dozen colonies of bees if he is raising comb honey to sell. It would have been worth thousands of dollars to me had I known as much on this line 30 years ago.

You were certainly exceedingly liberal in giving so much space to Mr. F. L. Thompson, who so adroitly brings in Mr. Getaz and Weed to show that my success in securing well-filled sections is due to having the foundation fit up solid to the wood all round.

Now I wish to say to the intelligent, unbiased readers of Gleanings, that I *do not* approve of having the foundation touch the sections at the sides or bottom. It seems too much like air-tight compartments; and unless there are open bee-ways over the separators at the top of the super the bees will cut out the foundation, and make the passages themselves.

I want to be correctly understood as *absolutely opposed* to bottom starters. I much prefer a full free bee-space under it for the bees. Any one who has to use bottom starters to get his section built down is heading down stream, and can be sure there is something radically wrong in his philosophy and practice.

Mr. T. says, "Both kinds of sections compared should be in the same super." That is just exactly my way, and I have been experimenting 30 years, and yet I have not felt that I knew enough to herald it abroad. When I felt sure that I had some contraption that was a sure thing, and applied it to the bees, they showed up its weak points in fine style. They are sticklers for fine points, as may be seen by a glance at the four sections on page 920. By mistake all the last year's fences in my supers are $\frac{1}{16}$ inch too high at the top edge, making it an impossibility for the bees to fill or cap the top row of cells, while the lower edge of the fences is all right. This is now corrected for the 1899 fences. If those who have last year's fences will dress off $\frac{1}{16}$ inch at the top of those that are too high, they will be all right. The right space is $\frac{3}{16}$ inch lower than the under side of the top of the section.

Bees are a little folk, and make note of little things. Man can have them do things contrary to their instincts and bee sense; but it pays to humor them. If we will get the best results in section honey, give them sections not less than 4 inches wide by 5 high, so that the finished combs when capped are *not more than 1¼ inches thick*. Use full sheets of extra-thin foundation, solid at the top, to *swing free* of *both sides and bottom*, in *warm supers, with strong colonies, always*. Less deep or wide sections are improved by fences, but they must be too thick for a pound to ever compete with the taller wider section.

F. Danzenbaker.

Washington, D. C., Dec. 22, 1898.

MAKING HIVES BY HAND DEFENDED.

Do not entirely discourage beginners from trying to make their own hives, as your footnote to Mr. Vinal's article on page 880 would indicate to be your intention. I do not think that Mr. Vinal's statements need be discouraging, for, in spite of his statement that he has "some mechanical skill," the results do not show it. How could he spend 21½ hours in sawing out stuff for 20 hives, to say nothing of the other items given?

Taking my own case, it would have been absolutely impossible for me to buy my hives ready made. I did not have the money. Thanks to A. I. Root and his A B C book, I had the measurements and instructions to make hives, and I made them. Yes, and I made them with a hand-saw and a hand-plane too, in spite of your assumption that "no one can afford to fuss with a hand-saw;" also made the frames, section-holders, division-boards, etc., and the total cost per hive was about 55 cents — not counting time. Of course, you will say my time was not worth ten cents an hour. Well, it was not. What *is* the value of a man's time on a new farm on cold stormy days? I used very few tools in the making of these hives — saws, plane, hammer, square, and a rabbeting-plane that I borrowed — no vise nor regular bench. When I can afford to buy hives I shall certainly do so; but being able to make them has enabled me to start from 12 colonies in box hives, and multiply till I now have 45 in Dovetailed hives.

Hotchkiss, Colo. H. L. James.

[Situated as you are, with plenty of time at your disposal when you could not be earning any thing, you can make your own hives and do it profitably. No, no! I would not discourage such men as you. But, say; I'll venture you have more than ordinary skill. Any man who can make hives with a hand-saw, hammer, and plane, and have every thing come out right, is a genius. I don't know but that we should do well to get you to come to Medina and make hives with machinery. It was I who wrote most of the matter on hive-making in the A B C — at least, that portion describing how to make the Dovetailed hive, or modifications of it. I am pleased that you succeeded so admirably.—ED.]

EDITORIAL

BY E. R. ROOT

THE article on foul brood. by J. A. Buchanan, page 48, will bear careful reading. It seems to show beyond a doubt that a few minutes' boiling of honey does not necessarily kill the germs in honey from diseased colonies.

JUST at the last minute I am told the "Roll of Honor" department *had to be* left over until next issue. "Barney" said he didn't know but A. I. R. would be "mad" and so I am, but we will make next issue larger to take in a "good lot" of the big pile of letters on my desk. A. I. R.

I SHOULD like to know, for curiosity, whether our readers would like to have fewer long articles and more short items. I put this question a few years ago, and the general responses seemed to be, "Keep the departments as they are." What is your pleasure, dear readers?

THE temperature of bee-cellars should be watched these days. It should not ordinarily be allowed to go much above 50 nor below 40. Do not be alarmed if there are a lot of dead bees on the floor. The most perfect bee-cellar ever devised will not prevent the old fellows from flying out on the cellar bottom, and dying there.

NOW is the time to put together hives, sections, and every thing else needed for next season's work in the apiary. It is bad policy to put it off. There are days in winter when the farmer or bee-keeper has a good deal of spare time at his disposal, and he ought to make these days save as much labor as possible during the rush.

QUITE an extended dialog between J. E. Crane and myself has been taken down in shorthand. I simply acted as the pump, and Mr. Crane the well of information. The matter is very readable and interesting, and will be supplemented by some half-tones showing Mr. Crane and your humble servant in very warm "Ernest" conversation. We are at present waiting for the pictures.

WE often get inquiries on how to make a bee candy for a winter feed when combs of sealed stores are not to be had. The best candy is the Good or Scholz, and is made in this way: Mix sugar and honey into a stiff dough; allow it to stand for a couple of days in a warm place and then knead in more sugar. Granulated sugar may be used; but powdered, or, better still, confectioners', is much better.

BEES NEAR BY ALMOST A NECESSITY TO SUCCESSFUL FRUIT GROWING.

WE quote the following from Press Bulletin No. 8 of the Kansas Experiment Station, Manhattan, Kan. The italics are my own:

> If bees are kept from fruit-blossoms by netting or other artificial means, the amount of fruit set is little or none. It not infrequently happens that inclement weather prevents or hinders the flying of bees during the period when the flowers are receptive. A fruit-tree, half of which was subjected to a continuous spray of water during the flowering period, produced no fruit upon the sprayed portion, but an abundance upon the other. A failure due to the above-mentioned cause can not well be prevented, but may be modified by having bees *near at hand* to utilize the short favorable periods which do occur.
>
> An insufficient supply of bees will hinder the setting of fruit. While other insects may take part in the carrying of pollen, the fruit-raiser must rely chiefly upon honey-bees. Experience shows that, though hungry bees may fly two or three miles, hives should be within half a mile of the orchard or small-fruit patch.

I notice similar reports in almost all of our agricultural papers; and it is not only the fruit-growers, but even growers of melons, etc., that must have bees for the most successful crops. I suppose you remember what was said at Omaha in regard to the Rocky Ford cantaloupe-melon growers.—A. I. R.

THE GENEVA CONVENTION; OUR APOLOGY.

AN apology is due to the members of the New York Association of Bee-keepers' Societies, which held its last meeting at Geneva, N. Y., Jan. 11. I was invited to be present, and to read a paper on foul brood; but at the last minute circumstances over which I had no control prevented my leaving. I had my trains picked out, and paper partially prepared, so that my intentions were good. Another apology is due to these bee-keepers from the fact that we failed to publish a notice of their convention. It reached us from the secretary, Harry S. Howe, in time, but it was sidetracked with some other matter, and was overlooked till it was too late for it to appear in GLEANINGS.

I have made arrangements so that *hereafter* all convention notices will go direct to the printers, for one or two other similar notices have been sidetracked in "my pile" awaiting my attention.

If the York State bee-keepers will give me another chance I will try to redeem myself.

DEATH OF J. P. ISRAEL (SKYLARK).

THE following note, just received from J. M. Hambaugh, formerly of Brown, Ill., now residing in California, will explain itself:

> *Friend Root:*—It becomes our painful duty to tell you of the death of our old friend and correspondent J. P. Israel, alias "Skylark," which took place last Sunday, the 1st. I will furnish particulars as soon as I receive them. J. M. HAMBAUGH.
>
> Escondido, Cal., Jan. 3.

J. P. Israel, or "Skylark," as he was latterly known, was an occasional writer of some prominence. He wrote a series of articles for GLEANINGS entitled "Pickings by the Way," and within a year or so his articles have appeared in several of the bee-journals over his usual *nom de plume*. He was an interesting writer in both prose and poetry—his especial forte being a mild burlesque. Our readers will miss his good-natured fun-making Pickings, for they did sometimes pick things to pieces.

REPORT OF THE NATIONAL BEE-KEEPERS' UNION.

THE report of the National Bee-keepers' Union for 1898 is before us. The following is the report of Manager Newman :

Balance as per last Report		$327 65
Fees from 149 members, for 1898 (3 having been previously reported)		149 00
Funds returned to treasury		25 00
		$501 65
Paid court expenses, attorney's fees, etc., in lawsuits	$145 00	
Printing, postage, and incidental expenses	53 30	
Manager's salary for 1898 on 149 members, at 20 per cent	29 80	
		$228 10
		$273 55
Back salary, voted last election :		
1896—244 old members at 20c.	$48 80	
1897—271 " "	54 20	
		$103 00
Balance on hand, Dec. 31, 1898		$170 55

A steady fire has been kept up by this society against various persons who have attempted to deprive bee-keepers of their rights, and all the ground so far gained is still ours. With the above came the report of the U. S. Bee-keepers' Union. The following is the report of Manager Secor :

On hand as per report of 1897		$182 09
Received from Secretary during the year		62 91
Received for membership fees, direct		232 58
		$477 58
Paid for printing, postage, and ex. charges during the year	$ 25 15	
Publishing proceedings of Omaha meeting	25 00	
Paid E. T. Abbott, delegate to Pure Food Congress	60 25	
Paid Eugene Secor, delegate to Pure Food Congress	50 00	
Salary of General Manager from time of organization to date, being 20 per cent of receipts by him	136 13	
Paid Mr. Aiken's expenses before Classification Committee	6 10	
Total expenditures	$302 63	
Balance cash on hand	174 95	

The foregoing statement includes the expenses of the Secretary's office; but as he turns over to me only the net balance after deducting his salary and expenses, the amount received by me does not quite indicate the full membership.

Respectfully submitted,
EUGENE SECOR, Treas.
Forest City, Ia., Dec. 20, 1898.

It will be noticed that the cash on hand in the treasury of either society is very nearly the same as in the other. Although the Union has had no case in law this year, its work has been "varied and abundant" in disseminating truth relative to honey and our interests in general. In March last, Mr. Secor attended a pure-food congress in Washington, and the U. S. B. K. U. received a full recognition by the side of all other allied industries. Some four cases of attempted infringement of bee-keepers' rights were promptly repulsed. A full report will be sent free by applying to Manager Eugene Secor, Forest City, Ia.

REPORTING SUCCESSES AND FAILURES.

I notice in letters printed in GLEANINGS, reporting honey crops, a large preponderance of successes over failures. This does not coincide with my experience, and also tends to bring down the price of honey.
Reedsburg, Wis., Dec. 30, 1898. R. C. WATTS.

I KNOW it is easier to report successes than failures, and have already referred to this same phase of human nature before. I am aware that there have been some more reports encouraging than discouraging, even in our own columns; and these reports alone would be misleading but for the fact that I have several times said editorially that this is the poorest season we have known for years.

Perhaps you ask how we know it. Largely by the hundreds of letters that come in that are never published because they are connected with the commercial department and can not very well go to the journal without making some delays in business.

But another and more accurate index of the season is the demand in July and August for packages for extracted honey, shipping-cases, and honey-labels. During the past season the call for these articles was exceptionally light in comparison with the demand for other goods earlier in the season. On the other hand, when there is a good yield, as there was in 1897, there is a great demand for all of these articles, especially labels. The supply manufacturer is, then, in rather better position to gauge the season than any one else.

But perhaps the question may be raised, "Why do you report at all the successes?" For the reason that it enables the one who did get a crop to dispose of it to some brother bee-keeper who didn't get any, and wishes to supply his old trade.

APIS DORSATA FROM THE PHILIPPINES; SOME BIG STORIES.

GOING the rounds of the daily papers is a statement, more or less modified, that in taking control of the Philippine Islands our government has obtained full possession of the giant bee, *Apis dorsata*, which bee is to be immediately brought by the government to this side of the world. So many crudities attend the statement that the intelligent bee-keeper may be excused from believing that there is very much foundation for what is said. Newspaper reporters are sometimes "expansionists" of an extreme type. Among the items appearing in an article in Toledo *Blade* are the following :

"In the Philippines a comb of honey six feet long by four feet wide and nearly two inches thick can be obtained for a few American cents." (Two hundred pounds of honey in one comb!) "The bee is about two inches long." "The Department of Agriculture proposes to import these East-Indian bees in large quantities for free distribution throughout the country, or for very cheap sale. A farmer desiring to go into honey-making can get a queen-bee and form a swarm."

Those who are favorably inclined to the new bees, and desirous to obtain them, may feel assured that they will receive information promptly through GLEANINGS whenever any thing authoritative is to be said; and those who oppose their introduction may possess their souls in patience; for, if we are to believe those who say *Apis dorsata* would be no acquisition, we may also believe them when they say that it could not live in our climate.

A PLEA FOR CANDIED HONEY; CANDIED HONEY CONFECTIONERY.

THIS is about the time of year when we ought to begin to talk candied honey to consumers, for the simple reason there is usually plenty of it. We have quite a trade from our factory help that prefer honey in this form to any other. We keep on hand the best grades of comb and extracted—the latter in liquid and candied form; but the solid article not a few take in preference. I suppose it is because it is more of a confectionery—something one can chew as he would some choice chocolate bonbon. There is really something about candied honey that I like myself; especially do I prefer it when spread on bread and butter, because I can "put it on thick." We asked one of our employees with a big mustache why he preferred candied honey. "Because," said he, "I can eat it without having my mouth all smeared up as it is liable to be with the other stringy stuff."

R C. Aikin, it will be remembered, has worked up quite a trade in candied honey in tin pails. His trade has been educated to like it. The Dadants have also developed a large trade for the same article. They put it, when liquid, into the Dadant pails; and when candied and labeled, to show how it may be brought to the liquid form, it is ready for market.

Suppose you try an experiment in your own family. Put three kinds of honey on the table; and if the candied has not been on the table for a month back, just see how quickly it will be taken in preference to the other two.

As you meet your customers, always mention your candied honey. Ask them to try a sample. You will be surprised to see how they will call for more.

I think the main reason why the candied article does not sell in the open market is because the average consumer imagines it is "sugared," or not pure in that form; but if he once understands that it is genuine honest honey we shall see a marked demand for honey in that form in the markets generally.

Some efforts have been made in the past to make a confectionery of candied honey alone. The honey is allowed to become solid, when it is sliced up into small cubes, and wrapped up in paraffine paper; but before putting it in the paper it is allowed to stand a few days to permit the liquid portion of the honey to drain off, and that reminds me that candied honey is the very best there is. The inferior portion of the extracted will drain off, or remain liquid. Just pound that fact into the heads of your customers.

THE LANGSTROTH-MONUMENT FUND.

QUITE incidentally I happened to mention in one of my letters to General Manager Secor, of the U. S. Bee keepers' Union, that we had had indifferent success in raising funds for the Langstroth monument; that the amount was only about $100. In his reply he expressed himself quite decidedly to the effect that the bee-keeping world ought to do better, and accordingly sent the following communication. As a result of some private correspondence already instituted, I believe he has increased the fund something near $50. Strangely enough, more funds have in the meantime rolled into our office—nothing like having a good man to get at a job like this. This is what he has to say:

> Having been placed on the Langstroth-Monument Committee I wish to make this final appeal to the bee-keepers of America before erecting the slab that is to mark the resting-place of the most noted character and best loved bee-keeper in our country. It seems to me that, if we neglect this opportunity to do honor to his name, we shall always regret it. Bee-keepers ought to esteem it not only a matter of loyal duty but a loving privilege to contribute to a suitable monument to one whose services to American apiculture have been so universally acknowledged. It is one of the strange things in this world, that very often the inventor of useful appliances fails to receive the rewards due to his genius. Thus it was in Langstroth's case. He builded, we occupy. The world now recognizes his services, but robbed him of the material fruits thereof, when needed. Will this generation be satisfied to let him lie in an obscure or forgotten grave when it is understood that the ingratitude, selfishness, and cupidity of jealous rivals darkened for a time the luster of his achievements, and marred the happiness of a grand good man?
>
> The committee has in preparation an inscription to be engraved on the monument, which recognizes the great services rendered by father Langstroth, and which attempts to pay loving tribute to his memory. It is to be dedicated to him by the bee-keepers of America. It is neither just nor wise that a few men should erect this memorial when every one interested in bees or bee-keeping is reaping the fruits of Langstroth's genius.
>
> A large number of subscriptions, in amounts not to exceed $5.00, would be a better recognition than a few large contributions. If every reader of these lines, who has not already done so, would send in his contribution to this fund immediately it would relieve the committee from the embarrassment of erecting a monument which they feel is in no sense an adequate expression of the admiration and love felt for the "Father of American Bee-keeping."
>
> The committee will proceed in the spring to erect such a memorial slab as the funds in hand will warrant; and if the reader does not in the next few weeks send in his mite he will miss the opportunity and privilege of being counted as one of the donors.
>
> Forest City, Ia. EUGENE SECOR.

As formerly, we shall be glad to receive further funds. We promised, I believe, at one time, that we would not bring this matter up again; but Mr. Secor felt that it could not be dropped where it was; so here we go again for another pull.

In our next issue, or as soon as practicable, we will give the amount of funds secured, and hope we may be able to more than double our previous effort, and we shall if Mr. Secor does as well as he has begun.

OUR HOMES,

BY A. I. ROOT.

Like as a father pitieth his children, so the Lord pitieth them that fear him.—PSALM 103:13.

No good thing will he withhold from them that walk uprightly.—PSALM 84:11.

One of our readers has been disturbed, because, as he says, his minister (or perhaps more than one minister) has preached from the pulpit that there would be no family relations in heaven—husband and wife, father and mother, brother and sister, etc.—these would all be done away with. These ministers get their authority, so this good friend says, from the words of Jesus, when he said to the Sadducees, who believed in no resurrection of the dead, "In the resurrection they neither marry nor are given in marriage, but are as the angels of God in heaven." My friend wishes my opinion in regard to the matter through these Home Papers. My opinion is that no minister has any right to make any such statement. By searching the Scriptures we can find very little that is definite regarding heaven. The great Father seems for some reason to have kept us very much in the dark in regard to this, and even in regard to the whole matter of the future state. I have reflected on the passage in question a great many times, and it has always seemed very clear to me that Jesus simply rebuked their low ideals of heaven when he answered their puzzling question, or conundrum, as you may call it. Granting that the Savior's words are literally true, that marriages are not made in heaven, he does not say that marriages made here on earth shall not *hold* in heaven.

In regard to the matter of one man having several wives, or one woman having several husbands—that is, after the first ones have been taken away—I am not competent to give an opinion. The whole matter, it seems to me, is one beyond our comprehension; and I do not take it to be a very important matter after all. Sometimes here in this world a man or woman marries again, *supposing* the first companion to be dead. When the two husbands or two wives come to light, there is not much difficulty in settling the matter pleasantly all around, and the husband and wife live together happily after these things. It would be strange indeed if such things could not be pleasantly settled to the satisfaction of all parties in that beautiful world beyond. The texts I have chosen, it seems to me, should answer the question. God is to be a kind *father* to us all; and, furthermore, we have the promise that no good thing will he withhold from us; and both promises are verified here on earth while we love and trust him. If you want my feeble human judgment in reference to the matter I should say most assuredly we shall know all our friends in the great future; and I do not believe that family ties will be broken up—that is, more than is necessary for our highest happiness. If some one of the family deliberately chooses iniquity and sin, and thus severs his relation from the rest of the family, and dies in that state, I do not think we should be miserable in that future life because of this. If we did all we could for the erring one, our affections "over there" will be so purified that we shall judge as God judges. And I think most ministers of the gospel will, at least pretty nearly, agree with me. In a recent number of the *Sunday School Times* this matter is covered very beautifully. A bereaved mother tells us how she found comfort and peace in believing her loved ones, who had been taken in early age, should be growing and developing—yes, and *waiting* for her, in the world to come. But, dear friends, when I chose the two texts above I had another matter in mind.

After our machinery had got to running fairly well in the factory, so I could be spared a little, I began considering some repairs in that favorite apparatus of mine for storing up heat from exhaust steam. I will explain briefly to our new readers, that for several years we have been taking exhaust steam from the factory and conveying it some 400 feet under ground over to my dwelling. The steam has always been carried through large-sized drain-tiles. The steam, in passing through these tiles, heats the ground for several feet all around them until it not only holds the heat nights but over Sunday. Inside of these tiles are water-pipes connected with the hot-water radiators in our home. The circulation of the hot water through the radiators warms our dwelling nights and Sundays when the factory is not running.

Two difficulties have troubled us more or less for the last five or six years, or ever since this device has been in operation. In order to reach the house the tiles go down into a little hollow or valley, and rise up again before reaching the house. The water from this condensed steam washes dirt into the tiles, and fills them up with mud. Worse still, a great part of the way the steam, in passing over to the house, is going *up* hill while the hot water from the condensed steam is running back *down* hill. Let me say right here that any apparatus for using steam for heating, either live or exhaust steam, should gradually go down hill from the starting-point; then the water and the steam will be both going in the same direction. The pounding and bumping that we often hear in steam-pipes is because this rule is violated. When the water is running one way and steam going the other, there will be a conflict between the two. The steam will sometimes push the water ahead of it, and sometimes send it like a cannon-ball, with a clang; then the water will, by force of gravity, start back again, to be hurled once more in the opposite direction.

Well, just before the cold weather set in I had, at some little expense, replaced the drain-tiles, that had been in so many years, with vitrified sewer-pipe. This answered for a few days; but I was greatly disgusted to find in a little while that the *sewer-pipes* were filled with mud like the other. Now, I do not like to be baffled, as you know. I had spent quite a little money by putting in the sewer-pipes.

I felt both disgusted and impatient. I had been bantered already a great deal in regard to the amount of time and money I had wasted in my project of a "storage battery" for *heat*. One of the hands in the machine-shop asked me, jokingly, if I had got at my winter's work again, for I worked at it more or less last winter until I went to the Bermudas. The apparatus worked beautifully, so Mrs. Root said, until I got fairly *out of sight*, then the steam stopped coming, and our men wasted quite a little time in trying to find the stoppage, but they had to give it up. So the hot-water radiators were kept warm the rest of the winter by the hot-water furnace that had been put in to use when the steam got "balky." I told the boys I was at work on a great invention in a hitherto unexplored field, and that it cost lots of money to work out *any* important discovery. I kept thinking the matter over, and, you may be sure, *praying* over it. At times I felt almost ashamed to ask for wisdom from above, simply because this was a hobby of mine. I told myself the temperance work, the missionary work, and a thousand other things were of so much more importance that I should be ashamed of devoting so much thought (and prayer) to this sort of "play," as a good many might term it. But I could not get the matter out of my mind. I enjoyed myself more working in the mud and hot water, with those tiles, than with any thing else in the world—at least while I was demonstrating or testing some new ideas. I felt ashamed to confess it to anybody else, but I think I may tell you, dear reader, that I lay awake nights waiting for daylight so I could go on with the work I loved. My appetite was excellent—no trouble from indigestion—and I was so full of enthusiasm that I could hardly take time for my forenoon nap. I managed, however, to sleep fifteen or twenty minutes in order to gain strength to go on with the work. After my glazed sewer-pipe had failed I began to consider iron pipes, laid from the factory almost over to the house. I was agreeably surprised one day to find I could buy three-inch pipe for 13 cents a foot; and 230 feet would carry the steam near enough to the house, where the tiles ran up a very good grade into the cellar. This latter 100 feet or more had never been troubled with water or mud. One great trouble with iron pipes is their expansion and contraction. A pipe 200 feet in length is several inches *longer* when hot steam is passing through it than when cold; besides, it does not heat up a body of ground as the tiles do. With much trouble and expense I pulled out all the sewer-pipe that had been laid so carefully. Then I put it down again, sloping toward the house on a grade of one inch fall in every twenty feet. The iron pipe was put inside of this tile; and when at the lowest point near the house a "bleeder" was put in, or a smaller pipe, to take away the hot water formed by the condensed steam.

Near the factory, of course, we had to carry the pipe clear up to the surface of the ground in order to get the requisite fall. To provide for the contraction and expansion, an elbow was placed at the starting-out point so it would turn like a hinge; then the first half of the pipe was put in a wooden box with a smooth bottom of oak plank. On this oak plank, every four or five feet we placed little iron rollers so the pipe could crawl back and forth without smashing things up generally. To put in such a piece of work in the dead of winter is quite an undertaking. Two men (special friends of mine) said they could stand it if *I* could. When we were putting the pipe together one of the men from the machine-shop kindly went down into the mud and water with his tools in order to make the connections. Right in a critical time, when we were afraid our ditches would all cave in through the influence of the frost and rain, it seemed one morning as if we should have to give it up until winter was over. Some of the work had caved in, the tiles were out of place, and the outlook was exceedingly discouraging. My clothes were so muddy I looked worse than any tramp. I had a "crick" in my back from lifting injudiciously; my rubbers came off in the mud; my shoestrings were untied; my nose needed wiping, but my hands were so muddy that I could not get at my handkerchief; then, besides, I felt I was taking cold. But yet I did not want to give up the thing that was so dear to my heart. I remembered well the little prayer as I stood still in my predicament. My good-natured helpers were waiting for me to decide what to do next. I felt almost ashamed to utter simply that old brief petition, "Lord, help!" I prefaced it with something like this: "O Lord, if this thing thy servant holds so dear to his heart is not displeasing in thy sight, wilt thou once more, as thou hast so many times in bygone days, help him to succeed in this undertaking —not for his own sake alone, but for others who may be so situated as to be able to avail themselves of what he may accomplish." I remember wondering then if I should be able to tell the men what to do as I had so many times before under similar circumstances. And, dear reader, this case is no exception to my previous experience. All at once I saw how I could change my plan, at no very great expense, and make a decided improvement. The sun came out in a little while; I fished my rubber out of the mud, tied my shoes in spite of my lame back, got another pair of mittens while Mrs. Root washed the muddy ones, and after the sun came out we had very good weather until the work was completed. The apparatus worked to perfection so far as the *steam* was concerned. Mrs. Root rejoiced to feel the floor under her feet *warm* once more as the steam coursed through the pipes in the basement; and in a very little time the steam was pouring out of the chimney (after having warmed the house) instead of wasting itself in a zero air over at the factory.

I said the *steam* went through all right; but not so with the hot-water pipes. Owing to some changes made, the water would not circulate. I waited two or three days; ran water through under pressure to get out all the air; but every little while the radiators would be cold again. I knew what the trouble was, or pretty well. Our radiators and water-pipes had been put in piecemeal during several years past. An experienced plumber told me they were not put in according to rule, which I knew already. He said the pipes would have to be all taken out and the thing reconstructed; but I could not do so in the dead of winter, as part of them were inside of chimneys, and Mrs. Root could not think of having her house all torn up—surely not in midwinter—for any more fussing for my pipes.

While considering this matter, just before taking my nap one day, I knelt down right near the complicated system of pipes—pipes that had been put in by my own hands, and that I loved almost as if the rusty iron things had life and sense. I knelt down and prayed that I might have wisdom and understanding to make the water-pipes work, even as the steam-pipes were working, without expensive reconstruction. Dear friends, I oftentimes hesitate about telling you these things; and some good people chide me for so doing; but yet I know from your letters that many, like myself, have learned to find peace, happiness, and success by putting their trust in God;* and if my Home Talks shall help you to have faith in promises like the two or three I have chosen to-day at the head of this article, then I am certainly on safe ground.

I can not remember exactly now, but I think that, when I awoke from my nap after that little prayer, the pipes were hot. They kept getting hotter all day. Mrs. Root exclaimed with surprise that the parlor radiator, which had never before been *really* hot, was now giving off heat at a surprising rate; and some *indirect* radiators that had been put in for live steam years ago were also hot; and finally all the radiators in the house—eight in number—were as hot as if heated by the furnace; and, last of all, the furnace itself, with its large hot-water boiler, was so hot that it seemed as if there *must* be a fire inside when there was not a spark.† We let the fire in the furnace go out, and saved our coal. In fact, we have not burned a bit of coal since—not even in zero weather—except on Sunday. You see, running the steam in an *iron* pipe so great a part of the distance does not give the "storage battery" result to the same extent it did with my former drain-tiles. For heating hot-beds with exhaust steam we still use tiles; but I think that, if I were going to do it over again, I would use sewer-pipe with bells or flanges where they unite together. Where a great amount of exhaust steam is to be taken through the ground, iron pipes are best and safest, for the great heat, with so much dampness, is quite liable to break tiles.

This matter of utilizing exhaust steam from factories or places where a steam-engine is used for any purpose is getting to be an important matter. Where the steam is allowed to spout out into the open air, and go to waste, an enormous amount of heat is dissipated and lost—more than almost anybody has any idea of. All the radiators I have mentioned are warmed by 1¼-inch pipe exposed to a jet of exhaust steam for less than 100 feet; and the system of piping, as I have remarked, is very awkward, and not at all according to plumbing-rules. In fact, it is a surprise and a mystery that it should work at all, and give such results as we are now getting.

You may readily imagine that, after all this toil and anxious solicitude, I now feel happy every time when I go into my home, and stretch out my hands before the hot radiators; and when I thus stretch them out you may be sure I do not forget the great Father above who has said in his holy word, "Delight thyself also in the Lord, and he shall give thee the desires of thy heart." Dear brothers and sisters, perhaps you wonder that I found a text to express so completely my feelings as the above; and you may be surprised again when I tell you that my eye alighted on that verse by chance, as it were, right while I was dictating this Home Paper. The little Bible lay open before me where it seems to have opened of itself, to the 37th Psalm; and my eye caught the fourth verse without seeing any thing else on the page. It was directed, perhaps, by two pencil-marks; and as the book belongs to my good friend W. P. Root, who is taking down these notes, I shall have to suppose that the pencil-marks are of his own making.

This promise is all the more precious to me because of the word "desires." This thing I had been working on and praying over was one of the "desires" of my heart; and sometimes I felt a little uneasy, because I did not feel exactly sure that it was right for me to enjoy myself in working out problems of this kind. I felt, of course, that it was an innocent pleasure or recreation—certainly as harmless as to spend my time in what is called "questionable amusements," and far better. Some of the happiest hours God has ever given me were spent in exploring the realms of science, such as heat, electricity, hot-water circulation, etc.; and how beautifully this text comes in! "Delight thyself also in the Lord;" that is, make him your confidant, your partner, your companion in every thing you enter into, whether it be work or play; and then what a wonderful and precious promise is the remaining part of that beautiful verse! "and he shall give thee the desires of thy heart."

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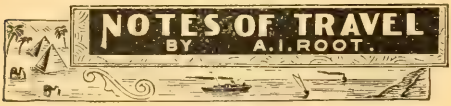
* Even while I write this footnote the following exceedingly kind letter is brought to my notice:

> Bro. Root:—Although I am nearly as old in life as you are, I can not help looking on you as a father. I owe much of my success in life to you and Gleanings. I am not rich, it is true. I have 170 acres of land worth $60 per acre, and have from $3000 to $4000 worth of personal property, and owe no man a dollar, and I attribute nearly all of it to one hive of bees and a copy of Gleanings obtained about 16 years ago—not that I made much out of bees, but somehow they and Gleanings instilled into me economy and a new life that I had never known before, and thereby prospered; and to you I give most of the credit M. F. Tatman.
>
> Rossville, Kan.

† During this busy life of mine I have had many disappointments. I presume I am naturally too sanguine, and so these disappointments and unexpected obstacles probably do me good—they ought to. Well, when any thing goes away *beyond* my expectations, I confess it is a "happy surprise;" and most of my happy surprises in this line come after I have prayed very earnestly and repeatedly over some particular thing. The old indirect radiators I have alluded to were originally used for live steam. I never expected the hot water to heat them. The feed-pipes were too small. They had never been removed from the place where built in chimneys in the basement because it would tear things up so to get them out. Well, this is not the first time, by any means when my petitions have been granted away beyond what I had ever hoped for or dreamed of; and it is even now a matter of astonishment to me to see that small iron pipe coming out of the cellar floor, from the ground outside, and sending such an amount of heat all over the house, up stairs and down.



NOTES OF TRAVEL BY A. I. ROOT.

YELLOWSTONE PARK AWHEEL; HOW TO MAKE THE TRIP WITHOUT PAYING OUT ANY MONEY AT ALL, PROVIDING YOU HAVE THE "MUSCLE."

A. I. Root, Friends, Brothers, and Co-cyclists:—I will introduce myself by saying I became acquainted with Mr Root through his journal, taken by Mr. and Mrs. Messenger, whose farm joins mine. I will say, Mr. Root, that further acquaintance with you was induced by the fact that you love the bicycle. And, again, I was further interested when you stated that you were about to tour the park on your wheel, for I already had plans matured for a similar trip.

I am an ardent lover of cycling, and so a friend and I planned and accomplished a tour on wheels from here (Northwest Nebraska) to the park via Billings, Livingston, and Cinnabar, and on through Idaho and Utah to Salt Lake City, and return home via Cheyenne—a circuit of over 2200 miles, and all on wheel but 500 on the home run.

I hoped very much to meet with you on the trip. I think likely you passed us at Livingston, as we were there from Aug. 2 to 15. We worked our way, and Livingston was one place where we stopped and worked. We traveled from place to place till money was gone, and then worked and replenished, and in this way made expenses from start to finish We planned our trip, and worked to the outline all through.

When we left Cinnabar we loaded our effects and four weeks' provisions on our wheels We have the honor of carrying the heaviest loads through the park on bicycles that were ever known.

We left the park on the west, and went to the Oregon Short Line, 100 miles due west from Fountain Hotel. When we left Cinnabar we had 75 lbs. of effects and 75 lbs. of provisions. When we reached Monida, on the Oregon Short Line, we had 75 lbs. of effects and 20 lbs. of provisions. Notwithstanding this heavy load we could and did make good speed; but as a rule our trip for a day was short, as we went to see the park Our longest day's ride in the park was 30 miles.

We reversed the circuit from Norris, and went to the left via Grand Canyon, Lake, and Thumb. Our equipment consisted of tent, 9x9, bedding, cooking-utensils, repair tools and repair supplies, and provisions; also gun, field-glass, and various little conveniences. We were 28 days in the park, and I hope and expect to go again soon. I shall ride a wheel in the park, even if I go and return otherwise. I think a wheel beats all other modes of travel in the park, and I also want to be free from all schedule time such as the coach runs by.

I read all of your articles with much interest, but smiled where you said, "Any one making this trip in the park should not carry a pound of luggage," or words to that effect. I thought "What would Mr. Root think if he had seen us with our 75 lbs. on each wheel, and riding eight miles an hour?"

Of course, we walked up the steeper hills; but none troubled us much except the Mammoth Springs hill, and that one we divided, as we camped one mile west of the Post.

I read your recitals with keener delight, no doubt, because I followed the route on my wheel; and I followed you in detail; and at such places as Willow Camp I stopped as you did, to inspect the camp, etc.; but if you had ridden on through, your descriptions would be more interesting to me.

We rode scores of miles on our wheels in the geyser fields where otherwise we should have had to walk or forego the trips as you did. Such freedom and ease no one can enjoy as on a wheel, in the geyser fields. I can see by your description that you were very limited in your explorations on account of your dependence on the stage; and yet you enjoyed many privileges you could not on the transportation coaches.

Many places of great interest you fail to describe; and I take it you were not there, and also other places you did not see personally, or you would describe them differently. Some of these, as it appears to me, are such as Great Fountain, Biscuit Basin, Specimen Lake, Sunlight Basin, Natural Bridge, Sulphur Mountain. Just for a moment think of Prismatic Lake, in Midway Basin, close to Excelsior Geyser. You will recall how the hot water overflows on all sides, and how difficult it is to approach it, and also the dangerous appearance of the crater, as the edges jut over, like ice in a pond, around an opening. But I wish you could have seen me there. A wheel there is just the right thing. The one to two inches of water was no hindrance to a wheel, and I sailed around and around it like a hawk, and so near the edges that it took all the courage I could muster.

Well do I realize your feelings as you describe the Excelsior. I had similar thoughts as I looked at it and encircled it.

Your description of Riverside Geyser comes right home, for we camped right above it in the timber for four days—camped right by the spring that supplies the Wylie Camp there. Your experience with the Geyser water was different from mine If you will absorb a little "Christian Science" the geyser water will not hurt you. I drank it with impunity, with no results different from those from other water. I made coffee with it also. I bathed in it, and washed clothes in it. I visited all the Wylie camps. I rode on steamer Zilla, and rowed skiffs several trips; went to the island and returned, and also to the Thumb. I was raised on the waters to a great extent. I lived in Ohio, on the Ohio River, near Parkersburg. All my folks were Quakers, and I helped on the underground railroad. Our house was a station. You see you are not so very much older than I am.

I visited the bear at Lake Hotel many times. I succeeded in approaching to within seven feet of one as he culled the garbage. I was there when the "silver tips" whipped twice their number of black bears.

Excuse me if I criticise you once. Where you speak of the fish at Wylie Camp, at the lake outlet, you call them speckled trout. The fact is, there is not one speckled trout in the lake or in its outlet. They are salmon and rainbow. Between Billings and Livingston (15 miles west of Billings) we stopped over night with a man who has bees, and takes your journal. He is a preacher too. We talked of you, and I told him of your proposed trip, and he said he should much like to see you. My partner cleaned their organ, and took pay in honey and butter.

I hope you will excuse me for writing such a long letter to a stranger. It is presuming lots to think it will pay you to read it all. But I am such a lover of the wheel, and of touring, that your trip and description enthused me. R. M. STANTON.

Chadron, Neb., Jan. 1.

My good friend, why in the world didn't you write me a postal card and tell me what you were going to do, so I could have made one of your party for at least part of the time? I confess I was a good deal disappointed when the time came for me to start, and not a man or boy who reads GLEANINGS had proposed joining me on that trip. I hardly think I should have taken the coach—at least not to the extent I did—had I just found somebody to talk with and compare notes, etc. When I gave my instructions not to carry a pound of baggage I was talking for the average person; and, dear friend S., if you have never before in your life thanked God for your muscle and for the muscular strength he has seen fit to give you, just get right at it this minute. Another reason why I advised stripping the wheel was because the Wylie people would carry one's luggage on the stage for only 25 cents a day. With my comparatively feeble health and strength it was worth 25 cents several times over to have all the things needed taken on the coach, and have them waiting for me at each stopping-place.

I shall have to confess to you, since you mention it, that I described one or two places briefly that I did not visit; and if I made mistakes, I think they are in the guide-books. I feel very sorry for having omitted Sulphur Mountain; but the ladies in our coach had been there, and did not care to go a second time; nevertheless, the driver said he would take that route, which was quite a little longer, if I insisted on it; but as I was the only person in favor of going that way, of course I could not well urge it; and my wheel was not with me, so I could not go where I pleased, as you did. Then there is another thing: Where one goes all the way on the wheel, especially if he is alone, there are a great many things he might not find at all. In fact, I spent a great amount of time at Mammoth Springs in trying to find certain things from the guide-book. I could not very well ask the guides to help me, whom I met occasionally, for they were hired to direct those who patronized their company. I became very tired in going afoot over the geyser basins; but my wheel was left behind at Norris. I, like yourself, Providence permitting, am going again through Yellowstone Park, and with my wheel; and if you will let me know when you are ready I will try to be on hand; and may be some other reader of GLEANINGS will make one of the party after reading your graphic description, and finding out how cheaply it can be done by one who has the muscle and does not have the cash. By the way, was it not rather dangerous for you to ride on your wheel over that thin crust, so near to those bottomless pits filled with water boiling hot? I should have supposed that the hot water would injure your rubber tires, for I am told it spoils a good many shoes belonging to visitors.

In regard to the geyser water, I still think it risky business for most people; but with your robust health, and after the tremendous muscular exercise you had gone through with, your system was ready to throw off or resist effects that would have been dangerous to dyspeptics. Very likely much of the hot water is all right; but there are certain springs that contain minerals in solution that give the water a very bad taste, at any rate. Look here, old chap; there is another thing I want to mention. You made all this trip, as you say, and you succeeded in finding a job where you could earn cash, no matter where you happened to be; and I am pretty sure I am right when I tell you that numbers of people, probably, were in all those localities hunting for work and could not find a job to pay for even board and lodging. I know something about it; for when I am traveling I almost always inquire what the chances are to furnish work for the people in various places. Livingston, for instance, seemed in a good many respects a dead town; and yet, as I take it, you two got jobs without any trouble, and got pretty fair pay. May be the sight of your muscle, your ability to ride, and carry a load, had something to do with it; but my opinion is, you two fellows have got hold of the knack of making yourselves useful wherever you happen to drop down; and I take pleasure in publishing your letter, because it shows what a "hustler" *can* do when he takes a notion to *do it.*

HIGH PRESSURE GARDENING

BY A. I. ROOT.

NEW POTATOES WORTHY OF MENTION.

On page 805 of our last year's volume I told you I had a potato-story to relate when I got around to it. I reached the residence of my cousin, Wilbur Fenn, after a long wheelride, quite a little after dark, but I found a warm welcome from the whole family, from the least to their eldest daughter, the one who is worth more than any $1.50 man to watch the pieces of potatoes in the potato-planter, and make them go right. Next morning it was hardly dry enough to dig potatoes; but there was such a strong prospect of more wetness still that the Hoover potato-digger was got out and started. I do not know whether they made it go all day or not; but I do know that I rode nearly fifty miles on my wheel, most of the way over clay roads, that day, even if it did rain more or less at about every step of the way. But I rather enjoyed it, notwithstanding the rain. You know one of my special enjoyments is to breathe damp air while I am riding a wheel. On this account I like to ride while the dew is falling on moonlight evenings. But this was to be a potato-story.

Cousin Wilbur's largest field of potatoes was not yet ready to dig. It was almost November, but there had been no killing frost, as you may remember. The Monroe Seedlings had died down more or less from something that might be blight or might be something else. We could not exactly agree about it; but right down through the field there were several rows of Monroe Seedlings right alongside of the rest, but with the foliage green and luxuriant. Of course, these thrifty-looking rows caught my eye.

"Why, Cousin Wilbur, you say these are all Monroe Seedlings. If this is true, what in the world is the reason those few rows stand up green and thrifty while the others are mostly dead or dying?"

"Well, cousin, you have struck on just what I wanted to show you. Last season I noticed here and there a hill in my large field that was bright and green while the rest had died down; and the question arose in my mind as to whether this was a sport of something better, or whether it was owing to the soil in just that spot. To settle the matter I let those thrifty hills get fully ripe, dug them by hand, stored them by themselves, and planted them this year as you see, and *there they are.*"

We got down on our knees and dug quite a few hills of the thrifty ones, and then an equal number of the others. There was no mistake in the matter. Cousin Wilbur had, by this plan of selecting hills, *in just one season*, secured an improved *strain* of

Monroe Seedlings.* They are a larger potato than the others, and better yielders; but it would seem they are rather later in maturing, and there is a strong probability that they will resist the blight better than the ordinary strain picked up just as they come. Now, here is something exceedingly important to the potato-grower. By selecting the best hills for seed next year he can not only improve the quality of his potatoes but increase the crop to one-half or to double. Whether it will work the same every season or not, experiment alone can determine; but I have tried the same thing myself enough to know that a *good deal* can be accomplished in this manner. I managed to get one bushel of these improved Monroes; but Mr. Fenn did not really want to spare even one bushel. The Monroe Seedlings seem to be not only equal, but rather ahead, all things considered, in that locality—Summit County; and this improved strain ought to give something wonderful in the way of results.

Now, there was another stretch of a few rows in the same patch, that showed a difference, and this was what he called his Russet potato. The surface of the potato is rough or netted just like a russet apple. A fertilizer agent had given him some of these potatoes to try, declaring that that they would never scab under any circumstances nor in any ground; and I believe that, after digging, he found no scabby potatoes among the Russets; but, for that matter, there were almost none among his Monroe Seedlings, for Cousin Wilbur has managed for years (by taking great pains) to keep pretty nearly clear of scabby potatoes. I said then and I say now that I will give a thousand dollars for a barrel of potatoes, equal to our best in other respects, that will not scab in any ground with any kind of fertilizer. I should not want to pay this thousand dollars, however, till I had tested the potatoes for about two seasons. If any of you have such a potato, send along your barrel. I have a bushel of the Russets, and they *may* fill the bill; but I have so much doubt in regard to it that I make the above offer.

Special Notices by A. I. Root.

POTATOES WE HAVE TESTED AND FOUND WORTHY OF MENTION.

I suppose you are aware that I have for many years been testing all the promising varieties of potatoes, and I have the following quantities of the kind mentioned below:

Poor Man's Friend, 12 bushels; Sir Walter Raleigh, Queen of the Valley, 4 bushels each; Russets, 1 bushel; Fenn's Improved Monroe Seedling, 1 bushel; Early Vaughn and Zehr, 2½ bushels each; Early Andes and Burpee's Extra Early, 2 bushels each; Hundred Fold, 2 bushels; Adirondack, 7 bushels.

Poor Man's Friend gives a good crop of great round red potatoes, and the yield is tremendous, even on very poor soil. Sir Walter is a good deal like Carman No. 3. From my own experience I can not see that it is particularly better. Queen of the Valley is considerably like New Queen, but it is of extra quality. The four early potatoes—Vaughn, Zehr, Andes, and Burpee's—all yield about alike. Early Vaughn kept on growing clear into the rainy fall, while all the rest died down, with the exception of the New Queen. Hundred Fold is an exceedingly good late potato, and I may say the same of the Adirondack.

Now, you see I have not enough of the above to offer them for sale unless it is in very small quantities; but if any of you want some of them to try we will send 1 lb. by mail for 18 cts.; or 3 lbs. by mail for 45 cts. By freight with other goods, ½ peck for 25 cts.

Fenn's Improved Monroe Seedling and the Russets we shall offer only by the pound. By the way, I notice quite a number of the new seed catalogs are offering a Russet potato; and although they call it by different names, my opinion is, from the picture and the description, it is the same thing I have described.

MILLS' PRIZE POTATO.

I always dislike to make our list of strawberries, potatoes, or any thing else, larger when it can be avoided. We have already too many good kinds of almost every thing; and unless the new comer is something very much ahead of varieties already listed, we can not afford to give them a place. Just now, however, we are so much pleased with the potato called Mills' Prize that I have decided to add it to our list. It very much resembles the Rural and the Carmans; in fact, I could not tell it from a very nice sample of Carman No. 3. The potato yields as well as any of these varieties; and last, but not least, it is the best cooking potato I have ever got hold of unless it is the Freeman. The potatoes are very much larger than the Freeman, of nice shape, and as handsome as any potato I ever saw. If they are always as good as the crop of the present season, I can not understand why there has been no more stir in regard to them. Mills, in his catalog, gives them only about half a dozen lines. He says, it is true, they are "fine-grained, and cook dry and mealy;" but the catalogs are in the habit of saying this of almost every variety. By the way, a recent number of the *Rural New-Yorker* suggests that *quality* in potatoes is an uncertan element in spite of us. They say the Rural New-Yorker some years cooks beautifully; then at other times in other seasons it does not, and I have frequently noticed this. Notwithstanding, there are certain kinds, like the Freeman and Snowflake, that are always fine. Now, I can not tell whether Mills' Prize is always up to its present quality or not. A neighbor who has grown them for several years, and who sold me about 50 bushels, says they are always nice. If you want to try them, either for planting or eating, we will fill your order at the same price as the Rural New-Yorker; viz., 1 lb., by mail, 15 cts.; 3 lbs., 45 cts.; by freight or express, ½ peck, 20 cts.; peck, 25 cts.; ½ bushel, 40 cts.; bushel, 75 cts.; barrel of 11 pecks, $2.00.

CARLOAD SHIPMENTS.

Since we started our factory again, six weeks ago, we have shipped six carloads of goods for export, a car to the Rawlings Imp't Co., of Baltimore, Md.; one to J. M. Jenkins, Wetumpka, Ala.; one to Walter S. Pouder, Indianapolis, Ind.; a car of sections to Provo City, Utah; a carload of hives to L. A. Watkins Mdse. Co., Denver, Col.; and as we go to press we are loading a car for our northeastern branch at Mechanic Falls, Maine, and another for Chicago. We have orders booked and material partly made for fourteen more carloads for export, besides a number of carloads for different points in the United States.

CATALOG CHANGES FOR 1899.

In our forthcoming catalog, which we will begin distributing about Feb. 1, we will show a number of improvements in the details of our Dovetailed hives. The table of prices is slightly advanced to partially cover the advancing price of lumber. The wedge-top Hoffman frame is substituted for the molded top as regularly sent out; and if any prefer the molded top this will have to be specified in the order. The price of Root zinc will be advanced to $1.40 per sheet; 90c per 100 strips; and honey-boards of R. zinc will be advanced 2c each right through. There will be no change in price of Tinker zinc. The Danz. hive will be omitted from the general catalog, as we have a special circular describing this hive, which will be sent on application. Comb foundation will be listed at the following prices:

---

* When I visited James Smith, of Green Bay, Wis., he told me that, notwithstanding a good many people claim the Early Ohio potato had deteriorated, by constantly selecting his seed from the best and most thrifty hills he had succeeded in keeping it up to its original productiveness and good qualities in every respect. Seed potatoes saved from selected hills in this manner would, of course, have to bring a better price, and they will be worth it. Now, who will go to work and win for himself a reputation for extra selected seed potatoes? The simple claim that they are thus selected, without the name of some good careful man to back it up, would not amount to very much.

In lots of	1 lb.	5 lbs.	10 lbs.	25 lbs.
Medium brood,	50	48	46	44
Light brood	52	50	48	46
Thin surplus,	57	55	53	51
Extra thin surplus,	60	58	56	54

50-lb. lots, 1c per lb. less than in 25-lb. rate.

CONVENTION NOTICES.

The Wisconsin State Bee-keepers' Association that will meet Feb. 9 and 10, 1899, in Madison, promises to be the best one held for years. An interesting program will appear in next issue.

N. E. FRANCE, Sec.

SEED DUE BILL FREE

To get new customers to test my seeds I will mail my handsome **catalogue for 1899,** lithographed and beautifully illustrated, and a **10c. Due Bill,** good for 10c. worth of seeds for trial, **absolutely free.** It is full of bargains. All the **Best Seeds, Bulbs, Plants, Roses, new Fruits, Farm Seeds, Potatoes, etc.,** at lowest prices. **Ten Great Novelties** offered without names. I will pay **$50. FOR A NAME** for each. Don't buy your stock until you see this new catalogue. Several varieties shown in colors. Great inducements for orders this year. **You will be surprised** at my bargain offers. Send your address on Postal to-day. Tell your friends to send too. Old customers will receive a copy.

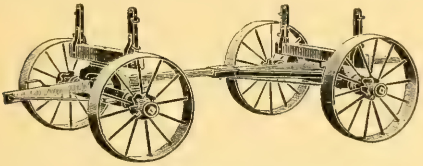
F. B. MILLS, Seedsman, Box 105, Rose Hill, N. Y

In writing, mention GLEANINGS.

BUY THE BEST.

If you want the best low-down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad-tired Electric wheels; best-seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red, and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 95, Quincy, Illinois, for their new catalog which fully describes this wagon, their famous Electric Wheels, and Electric Feed-cookers.

In writing, mention Gleanings.



Maple Syrup and Sugar

are scarce this season; the bogus article is never so. We can please you if you want the pure maple.

2 to 6 gallons fancy syrup at 90c; Nos. 1 and 2 grades, 5 and 20c less per gallon respectively. For more than case lot, club order, etc., write.

AS TO OUR RELIABILITY, write Boughton, Ford & Co., Bankers, Burton, O., or Adams & Ford, Cleveland, O.

Ohio M. S. Co., Burton, Geauga Co., O.

Farm Bee-keeping

Is one of the leading departments in the **Modern Farmer and Busy Bee,** the best **Farm** and **Bee** paper in existence. Write for sample copy and for clubbing rates with any paper you want.

E. TAYLOR ABBOTT, St. Joe, Mo.

NEW STRAWBERRIES

Largest and Most Complete List of Popular Varieties in Michigan BIG, HEALTHY PLANTS, FRESH DUG, and GUARANTEED to all parts of U. S. and CANADA. We also make a specialty of Choice Michigan-grown **SEED POTATOES.** Send for **Descriptive Catalog, FREE TO ALL,** and note what our customers say of our graded stock.

Flansburgh & Peirson, Leslie, Mich.

In writing, mention Gleanings.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To know what you have to exchange for new varieties raspberry-plants, Campbell and Alice grapevines and cuttings, and eggs from fine B. P. Rocks. MRS. LIZZIE MCQUEEN, Baltic, O.

WANTED.—To exchange apiarian supplies for colonies of bees from the South in April.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Man who understands bees, gardening, and hotbeds, for coming season. Must give reference. JAS. WEST, Box 229, Montpelier, Ind.

WANTED.—One barrel of honey-dew or cheap honey for spring feeding; send sample. Also one second-hand footpower saw. DANIEL DANIELSON,
Clarkson, S. D.

WANTED.—To exchange one female ferret, well trained, for bees or bee-supplies.
FAY W. MYER, Box 431, Hastings, Neb.

WANTED.—To exchange thoroughbred Silver-laced Wyandottes, S. C. Black Minorcas, or Buff Leghorns, for bees. Write
DR. A. F. RUBLE, Inverness, Ohio.

WANTED.—To buy hard candied buckwheat honey from a keg up to a carload.
LOUIS CHERRY, 240 South St., Philadelphia.

WANTED.—Situation by expert apiarist to handle bees the coming season on shares or otherwise. Any healthy location. THOS. ELLIOTT,
Adams House, Adams Street, Chicago, Ill.

WANTED.—To exchange one thousand wide frames with tin separators, for something I can use.
C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—To exchange two small printing-presses and printing outfit for bloodhounds, ferrets, fancy poultry, bicycles, or something I can use.
JAMES M. DENHAM, Valley, Ky.

WANTED.—To exchange supplies for bees on Dadant's frames. I. J. STRINGHAM,
105 Park Place, New York.

WANTED.—No. 1 white comb honey in 4x5-inch sections; also to furnish my hives and 4x5 sections for a share of the next honey crop, to parties within 100 miles of this city. Address *at once*
F. DANZENBAKER, Washington, D. C.

WANTED.—Young man who does not use liquors or tobacco to work the coming season on farm where honey, fruits, and general farm crops are raised. Give references. C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—Your address for a free copy of my book on queen-rearing.
HENRY ALLEY, Wenham, Mass.

Our Factory is the Largest,

Our Facilities are the Best.

We are Located

on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

We kiln-dry our Lumber, and Manufacture

BEE-HIVES, SECTIONS, AND SHIPPING-CASES.

We Handle Bee-keepers' Supplies. We are Prompt Shippers.

Write for catalog.

Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.

BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **Tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address E. KRETCHMER, Red Oak, Iowa.

In writing advertisers, please mention Gleanings.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

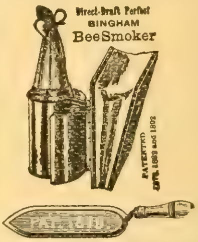
Smoke Engine (largest smoker made.)	4-inch stove.	Doz. $13.00;	each, by mail,	$1.50
Doctor	3½-in.	" " 9.00;	"	1.10
Conqueror	3-in.	" " 6.50;	"	1.00
Large	2½-in.	" " 5.00;	"	.90
Plain	2-in.	" " 4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	" " 4.50;	"	.60
Honey-knife		" 6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

To Sell or Lease for Cash.

An up-to-date apiary consisting of 200 good colonies or over, with fixtures complete. Privilege to remove to some other location if desired. Correspondence solicited. Address

The Gila Farm Co., Cliff, Grant Co., N. M.

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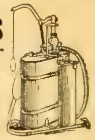
with our new patent

KEROSENE SPRAYERS

is simple indeed. Kerosene Emulsion made while pumping. 12 varieties sprayers. Bordeaux and Vermorel Nozzles, the **World's Best.**

THE DEMING CO.- Salem, O.

Western Agents, Hennion & Hubbell, Chicago. Catalog, formulas free



In writing, mention Gleanings.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2 50 each. I am also breeding the leather colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

In writing, mention Gleanings.

FOR SALE.—7000 lbs. fine white **Extracted Honey.** Also Southern Bloodhounds.

Elias Fox, Hillsboro, Wis.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

In writing, mention GLEANINGS.

A big yield of both
profit and satisfaction
will result if you plant

FERRY'S Seeds

They are **always the best.**
Do not accept **any** substitute—buy none but **Ferry's.**
Sold by all dealers. Write for
the '99 Seed Annual—free.

D. M. FERRY & CO., Detroit, Mich.

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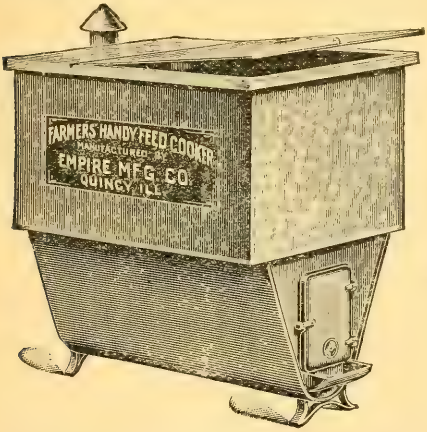
SEEDS

Fresh and Reliable. **From Grower to Planter.** I give you middleman's profits. Seeds that **grow.** Presents with every order. Beautiful and Instructive Seed and Plant Book sent **FREE** if you write before they are all gone. Address

H. W. BUCKBEE,
Rockford Seed Farms. Box 614 Rockford, Ills.

Farmers' Handy Feed-cooker.

Reader's attention is called to this device, which is sold at $12.50 fo 50-gallon capacity. By feeding poultry and animals cooked food during winter at least one third of the feed is saved; also having stock in a healthy condition, preventing hog-cholera among your hogs, and insuring the hens laying freely during the winter. On application to the Empire Manufacturing Co., Quincy, Ill., a catalog giving full description may be obtained. They are made in all sizes.


FARMERS HANDY FEED COOKER
MANUFACTURED BY
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Best Seeds that Grow!

Thousands of Dollars in CASH PRIZES for 1899

and many other New Features,
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BURPEE'S Farm Annual

Leading American Seed Catalogue
Mailed FREE to all.

A handsome **new book of 176 pages,**—tells the plain truth about Seeds, including rare Novelties which cannot be had elsewhere. Beautiful colored plates and hundreds of illustrations from nature. Gives practical information of real value to all who would raise the choicest Vegetables and most beautiful Flowers. **Write a postal card TO-DAY!**

W. ATLEE BURPEE & CO., Philadelphia

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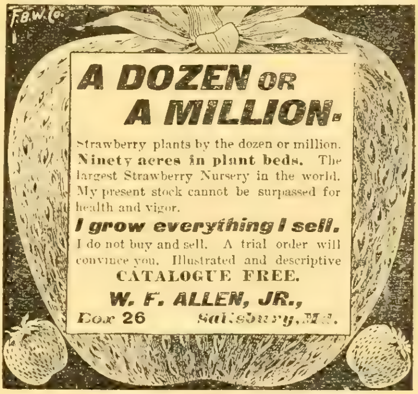

A DOZEN OR A MILLION.

Strawberry plants by the dozen or million. **Ninety acres in plant beds.** The largest Strawberry Nursery in the world. My present stock cannot be surpassed for health and vigor.

I grow everything I sell.

I do not buy and sell. A trial order will convince you. Illustrated and descriptive

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W. F. ALLEN, JR.,
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In writing, mention GLEANINGS.

For the best in the Nursery Line, both
FRUITS and ORNAMENTALS
Roses. Plants, Bulbs, Seeds,
and at prices to suit the times, consult
The Storrs & Harrison Co.,
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45th year. 44 greenhouses. 1000 acres.
Correspondence solicited. Catalogues free.

REID'S FRUITS

Every tree, plant or vine bought at Reid's is well-rooted, vigorous, and true to name. Every care is taken in growing to insure absolute certainty to the buyer. **Save one-half** on anything you need in the nursery line, by buying at Reid's.

We'll help you to choose by sending complete catalog, estimates, or any information you may ask for, free.

REID'S NURSERIES, BRIDGEPORT, OHIO.

In writing advertisers, lease pmention GLEANINGS.

Revised Price List of Garden Seeds for Jan. 15, 1899.

Please notice that any or all seeds mentioned below are sold in five-cent packages, postpaid by mail. For 10 papers ordered at one time, 40 cts.; 100 papers, $3.50. Of course, scarce and high-priced seed will necessitate making only a very small amount of seed in a package; but by far the greater part of them contain a full half-ounce of good fresh seeds. By comparing these packages with those you get of many of the seedsmen you will notice the liberal amounts we furnish for only 5 cts. It is true, we do not give presents or cash prizes; but we believe the most intelligent people of the present day would prefer to have their money's worth of what they ordered, rather than compete for a prize. The five-cent packages are sent postpaid; but the price of all other seeds does not include postage; therefore, when you order seed by the ounce or pound, allow postage thus: 9 cts. per lb.; 5 cts per ½ lb., or 1 cent per oz. Peas and beans by the pint and quart must also have 8 cts. per pint or 15 cts. per quart; for corn, add 12 cts. per quart for postage. Postage to Canada is double the above rates. One-fourth ounce, pound, or peck, will be sold at ounce, pound, or peck rates unless otherwise specified. In the enumeration below, no description of the seeds is given, as you may notice. Our complete catalog, with full description, will be mailed on application if you have not already received it.

ASPARAGUS.

Asparagus, Palmetto. Oz. 5c; lb. 40c.

Asparagus Roots. 2 year old. Palmetto, 10 for 10c; 75c per 100; $6.00 per 1000; 2-year old roots not mailable; 1-year roots, 10, 10c; 100, 50c; 1000, $4. By mail, add 5c for 10; 25c for 100.

BUSH BEANS.

Kumerle's Bush Lima. Qt. 25c; ½ pk. 85c; pk. $1.50.

Burpee's Bush Lima. Pt. 15c; qt. 30c; ½ pk. $1.10; pk. $1.75; bushel, $6.50.

Henderson's Bush Lima. Pt. 10c; qt. 18c; pk. $1.00; bushel, $3.75.

Davis Wax Bean. Pt., 15c; qt. 25c; 4 qts., 80c; pk. $1.10; bushel, $4 25.

Best of All. Pt. 15c; qt. 25c; 4 qts., 80c; peck, $1.10; bush. $4.25.

White Kidney, Large. Pt. 8c; qt. 15c; pk. 65c; bush., $2 25.

York State Marrow. The standard field bean. Qt. 10c; pk. 65c; bushel, $2.25.

Mills' Banner Bean. Qt. 15c; pk. 75c; bushel, $2.50.

Navy. Qt. 5c; pk. 35c; bushel, $1.25.

POLE BEANS.

Extra-Early Lima Beans. ½ pt. 8c; qt. 20c; pk. $1.25.

King of the Garden Lima. ½ pt. 8c; qt. 20c; pk. $1.25.

All of our beans will be furnished in 5-cent packages; but where they are to go by mail, postpaid, of course the above packages will have to be quite small. If wanted by mail, add 8c per pt. or 15c per qt. for postage.

BEETS.

Eclipse. Oz. 5c; lb. 20c; 5 lbs. 90c.

Long Red Mangel. Oz. 5c; lb. 12c; 5 lbs. 55c; 10 lbs. $1.00; 20 lbs. or more, 9c per lb.

Golden Tankard Mangel. Oz. 5c; lb. 15c; 5 lbs. 70c; 10 lbs. $1.20; 20 lbs. or over, 10c per lb.

STANDARD SUGAR BEETS.

Lane's Imperial Sugar. Oz. 5c; lb. 15c; 5 lbs. 60c; 10 lbs. or more, 10c per lb.

French White Sugar Red-top. Same price as Lane.

Klein Wanzleben. Lb. 20c; 5 lbs. 90c; 10 lbs. $1.50.

CABBAGE.

Select, Very Early Jersey Wakefield. Oz. 20c; lb. $2.50.

Henderson's Early Summer. Oz. 10c; lb. $1.00.

Fottler's Brunswick. Oz. 10c; lb. $1.00.

Burpee's Sure-head. Oz. 10c; lb. $1.10.

Excelsior Flat Dutch. Oz. 10c; lb. $1.00.

Perfection Drumhead Savoy. Oz. 10c; lb. $1.25.

Large Red Drumhead. Oz. 10c; lb. $1.25.

CARROTS.

Early French Forcing. Oz. 5c; lb. 40c.

Orange Danvers, Half Long. Oz. 5c; lb. 35c; 5 lbs. $1.50.

CAULIFLOWER.

Henderson's Early Snowball. ⅛ oz. 25c; ¼ oz. 40c; oz. $1.50.

CELERY.

Henderson's White Plume. Oz. 10c; lb. $1.50.

Golden Self-blanching Celery. Oz. 15c; lb. $1.75.

New Rose. Oz. 10c; lb. $1 00.

Giant Paschal. Oz. 10c; lb. $1 00.

Dwarf Golden Heart. Oz. 10c; lb. $1.00.

CORN (for table use).

Corn we sell at 5c per half-pint package; but at this price purchasers must pay postage, which is 3c for each half-pint. If wanted in larger quantities the price (where no price is given) will be, pt. 7c; qt. 12c; pk. 75c; bu. $2.75.

Kendel's Early Giant Sweet Corn. ½ pt. 5c; qt. 15c; peck $1.00; bu. $3.50.

Ford's Early Sweet.

Stowell's Evergreen.

Late Mammoth Sugar.

Country Gentleman, or **Improved Shoepeg.**

Sweet Corn for fodder. Pk. 30c; bu. $1.00.

CORN SALAD.

Oz. 5c; lb. 40c.

CRESS.

Extra Curled, or Pepper Grass. Oz. 5c; lb. 25c.

Water Cress, *true.* Oz. 25; lb. $2.50.

CUCUMBER.

Early Frame. Oz. 5c; lb. 25c.

Improved Early White Spine, or **Arlington.** Oz. 5c; lb. 25c.

Green Prolific, or **Boston Pickle.** Oz. 5c; lb. 25c.

LETTUCE.

Grand Rapids Lettuce. Oz. 5c; lb. 50c; 5 lbs. $2.00.

Boston Market (or White-seeded Tennis-ball). Oz. 5c; lb. 50c.

Henderson's New York. Oz. 5c; lb. 50c.

MELONS, MUSK.

Casaba, or **Persian Muskmelon.** Oz. 5c; lb. 25c.

Banana. Oz. 5c; lb. 25c.

Extra Early Citron. Oz. 5c; lb. 25c.

Emerald Gem. Oz. 5c; lb. 25c.

Miller's Cream, or **Osage.** Oz. 5c; lb. 25c.

MELONS, WATER.

Phinney's Early. Oz. 5c; lb. 25c.

Landreth's Boss. Oz. 5c; lb. 25c.

Sweetheart. Oz. 5c; lb. 25c.

ONIONS.

A leaflet on "Growing Onions to Bunch up" will be mailed on application.

Yellow Globe Danvers. Oz. 8c; lb. $1.00; 5 lbs. $4.00.

Large Red Wethersfield. Oz. 8c; lb. $1.00; 5 lbs. $4.00

Prizetaker. Oz. 20c; lb $1.75.

White Victoria. Oz. 20c; lb. $2.50.

American (Extra Early) **Pearl.** Oz. 20c; ½ lb. $1 25; lb. $2.25.

Extra Early Red. Oz. 8c; ¼ lb. 30c; lb. $1.00.

Bermuda (true Teneriffe) Oz. 25c; lb. $3.00.

ONION-SETS.

By mail, 10 cents per quart extra.

Best Yellow Danvers. Qt. 20c; pk. $1.00; bu. $3.50.

Extra Early American Pearl. Qt. 20c; pk. $1.00; bu. $3.50. See American Pearl *seed.*

Prizetaker Same price as American Pearl.

White Multiplier. Same price as Whittaker below.

Whittaker Onions. Large—qt. 10c; pk. 75c; bu. $2.50; small (sets)—qt. 18c; pk. $1.25; bu. $4.00.

PARSNIP.

Improved Guernsey. Oz. 5c; lb. 20c; 10 lbs. $1.50.

PARSLEY.

Fine Curled or **Double.** Oz. 5c; lb. 35c.

PEAS.

Alaska. ½ pt. 5c; qt. 15c; pk. 75c; bu. $2.50.

American Wonder. Qt. 15c; pk $1.00; bu. $3.50.

Premium Gem. ½ pt. 5c; pk. $1 00; bu. $3.50.

Stratagem. ½ pt 8c; qt. 20c; pk. $1.25; bu. $4.50.

Champion of England. Pt. 10c; qt. 15c; pk. 75c; bu. $2.50.

Canadian Field. Pk. 35c; bu. $1.25; 10 bu. $10.00.

Peas by mail will be at same rate as beans for postage.

PEPPERS.

Sweet Spanish. ¼ oz. 8c; oz. 20c.

Bullnose. ¼ oz. 5c; oz. 12c.

Cayenne. ¼ oz. 8c; oz. 15c.

PUMPKIN.

Early Sugar. Oz. 5c; lb. 30c.

Field Pumpkin. Oz 5c; lb. 15c.

RHUBARB.

Myatt's Victoria. Oz. 5c; lb. 75c.

RADISHES.

Early Scarlet Globe. Pkt. 5c; oz. 5c; lb. 40c.
Wood's Early Frame. Oz. 5c; lb 35c.
Beckert's Chartier. Oz. 5c; lb. 30c.
Chinese Rose Winter. Oz. 5c; lb. 35c.

SALSIFY, OR OYSTER PLANT.

New Mammoth. Oz. 8c; lb. 75c.

SPINACH.

Bloomsdale Extra Curled. Oz. 5c; lb. 20c; 5 lbs. 75c; 10 lbs. $1.25.

SQUASH.

Giant Summer Crookneck. Oz. 5c; lb. 40c.
Hubbard. Oz. 5c; lb. 30c; 5 lbs. $1.25; 10 lbs. $2.25.

TOMATO.

Golden Queen. Pkt. 5c; oz. 15c; lb. $2.00.
Ignotum Tomato. ½ oz. 8c; oz. 15c; lb. $1.50.
Livingston's Beauty. Oz. 10c; lb. $1.75.
Earliest-in-the-world Tomato. ⅛ oz. 10c; ¼ oz. 15c; ½ oz. 20c; oz. 50c.
Fordhook First. Oz. 35c; 1b $4 50.
Dwarf Champion. Oz. 10c; lb. $1.25.
Buckeye State. Oz. 10c; lb. $1.25.
Livingston's New Stone Tomato. Oz. 10c; lb. $1.25.
Trophy Tomato. Oz. 10c; lb. 75c.
Pear-shaped Tomatoes. Oz. 20c; lb. $2.50.

TURNIP.

Yellow Aberdeen. Oz 5c; lb. 25c.
White Egg. Oz. 5c; lb. 25c.
Breadstone. Oz. 5c; lb. 30c.
Purple-top White-globe. Oz. 5c; lb. 25c; 5 lbs. $1.00.

New Vegetables that I have Tested and Found Worthy of Mention for 1899.

Fancy Fordhook Tomato. See description and cut on p. 412, 1898. Pkt. 5c; ¼ oz. 20c; oz. 75c.

Rocky Ford Canteloupe Muskmelon. The same that so many people enjoyed at the Omaha exposition. Pkt. 5c; oz. 10c; 1 lb. $1.50.

Acorn, or Top Onion-sets, either Red or Yellow.

These are the old-fashioned onion sets that many of us remember seeing in childhood. They grow on top of the stalks, and they make the best onions to keep of any I ever got hold of. Both onions and sets keep, without the least bit of sprouting, clear on into June without any trouble. On this account, if for no other, they are more desirable than any other onion You do not have a great lot to sort over, nor to throw away the sprouted ones when spring comes. We can furnish these top sets, either red or yellow, at 20 cts. a quart; peck, $1 00; bushel, $3.50. As our stock of sets is limited, you had better order soon if you want them. I may say that all the sets are of our own growing; and we have also grown, during the past season, about 25 bushels of this variety of onions. These are just right to plant out to grow sets. Many of you had experience in getting quite a lot of pocket money when you were children, in growing these old-fashioned onion sets. If you wish to try it again we will furnish you the onions for 75 cts a peck, or $2 50 a bushel. We have about 25 bushels of the onions. You can sell the sets, all you can raise, at any corner grocery.

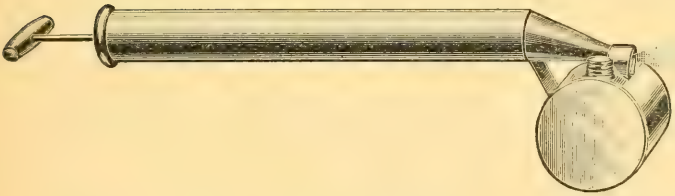
Benson's Renovator Cow Pea.

This is a luxuriant-growing cow pea that ripens the seed perfectly here in the North. Whether it is so much superior to some of the earlier cow peas already well known in the South, I am unable to tell. As our stock of seed is limited, we offer it for sale only in 5-cent packages. Each package contains a leaflet in regard to this particular cow pea, and another in regard to cow peas in general.

PRICES OF HONEY-PLANT SEEDS.

There will be no change in alsike clover, medium, white Dutch, or mammoth red clover; the same with alfalfa, crimson clover, sweet clover, and dwarf Essex rape. Japanese buckwheat will be, however, 1 lb., by mail, 15 cts.; by freight or express, 45 cts. per ½ bushel; bushel, 85 cts.; 2 bushels or more, at 75 cts. per bushel. Sack is included with above; 10 or more bushels, purchaser paying for the sack. 70 cts. per bushel. For prices of the clovers see our regular catalog, mailed on application.

Potato-bugs and Other Insects for 1899; the Faultless Sprayer.



Few little inventions make the stir and do the amount of good that the little tin spray-pumps did that were so extensively introduced last season. Although we have a machine for spraying potatoes, that cost $25, we let it stand in the tool house, and sprayed a great many acres of potatoes with a little spray-pump similar to the one pictured here. It did the work easier and cheaper and better. A boy with some packages of Paris green (a large spoonful in each paper) in his pocket, and in his hand a spray-pump weighing only about a pound, will do the whole job in a very little time; in fact, one boy takes his hoe along and does the hoeing and spraying both, without any machine to lug back and forth, nor any chance of said machine getting out of order. As soon as we began to offer them for sale others seemed to discover their advantages; and although we ordered pumps from the factory at several different times, we were sold out in spite of us when we wanted them most.

Well, we have now a tremendously big stock of some that are considerably improved over the ones we had last year, and the price is even *lower*. These pumps are so perfect that the spray looks like steam out of the nose of a tea-kettle; in fact, you can fill the air in a room with vapor with one of these machines. The price of the new improved machines is only 60 cts.; 3 for $1.50; ½ dozen, $2.50; dozen, $4.50. You can have the same thing made of brass for only 25 cts. more on each sprayer. As the brass can not rust, they are good for a lifetime. We can send the tin ones by mail for 20 cts extra to cover postage. As the brass ones are somewhat heavier the postage on them will be 25 cts. each. We have two or three dozen of the old-style, such as we sold last year, on hand, which we offer, while they last, at 40 cts. each. Now do not say you can not afford a sprayer to keep the potato-bugs out of sight, for the great advantage of this little apparatus is that it is so little work to use it you can kill the bugs when they first start, and keep them down before your potatoes are injured *at all*. Thousands of people lost their potatoes last season just because it was too much work to fight the bugs.

With every machine is a stout linen tag, with full directions how to use the sprayer for all kinds of insects. Yes, this machine will answer for fruit-trees all right, but you would have to get up on a high stool, or climb a ladder, to get the spray all over a tree of any size. For spraying *orchards* a larger and more expensive machine is needed.

The A. I. Root Co., Medina, O.

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often depends upon the start. If you start right you have a better chance of success. To start right in the poultry business the buy **Reliable Incubators and Brooders.** They work automatically and cannot fail of good results. Our POULTRY BOOK, 228-pages, big, tells all about them and a thousand other things you should know about poultry. We send it for **10 cents.** **RELIABLE INCUBATOR & BROODER CO., Box B 49 Quincy, Ill.**

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and send them our Incubator on trial. No man should buy an incubator and pay for it before giving it a trial. You **pay not a cent** for ours until you have given it a thorough trial. **It's made so that nobody can fail with it.** A child can run it with 5 minutes attention daily. It **beat** all others at **World's Fair, Nashville and Omaha Expositions.** The best **catalogue** and **treatise on incubation** published, sent for **5 cts.** Plans for Brooders, Poultry Houses, etc., sent upon receipt of **25 cts.**
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Seneca Falls Mfg. Co.,
44 Water St, Seneca Falls, N. Y.

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means a money maker. **Green Cut Bone** prepared by.... **Mann's New Bone Cutter** doubles the egg product. Mann's Granite Crystal Grit, Mann's Clover Cutter and Swinging Feed Tray fit about every poultry requirement. Catalogue **FREE.**
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Geo. J. Nissly, Saline, Mich.

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originated with us, and we still sell direct to farmers three fourths of all that are used. We build ten styles of farm wagons, extra wheels for old wagons, and milk-peddlers' wagons. Steel-wheel trucks, $18.

Farmers Handy Wagon Co., Saginaw, Mich.

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Rockford, - -

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The A. I. Root Co.'s Goods At Their Prices.
Including their discounts for goods wanted for use another season. It will pay you to send me list of goods wanted.
Cash for beeswax. **M. H. HUNT, Bell Branch, Mich.**

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Honey Column.

CITY MARKETS.

New York. — Trade in comb honey, is quiet. While there is no over-supply of white, buckwheat, dark and mixed grades have been accumulating of late and the market is well stocked. Concessions have to be made in quantity lots in order to move it. We quote fancy white, 12; No. 1 white, 10@11; amber, 9; buckwheat and mixed, 7. Extracted is in good demand. We quote white, 6½@7; amber, 6; dark, 5¾@6; southern, in bbls., 60@65 per gal. Beeswax quiet at 27@28.

HILDRETH BROS. & SEGELKEN.
Jan. 20 New York.

New York.—Market well stocked with comb honey, buckwheat and mixed especially. Fancy white finds a ready sale. Extracted of all kinds finds a ready demand. We quote as follows: Fancy white, 12@13; fair white, 10@11; amber, 9@10; buckwheat, 6½@7½; white extracted, 6½@7; amber, 6@6½; dark, 5½@6; Florida white, 6¾@7¼; Florida light amber, 6@6½. Other grades of southern honey from 55@65 per gallon, according to quality. Beeswax in good demand at 26@27.

FRANCIS H. LEGGETT & Co.,
Jan. 21. Franklin and Varick Sts., New York.

Chicago.—There is no special change in prices, all grades of honey are selling well, and weather has been favorable for shipping. Prices range as for some time past, 13c being obtained for best white, and 11@12 for that which lacks in fancy requirements; extracted, 6@7 for white, 5@6 for amber and dark; beeswax, 27.

R. A. BURNETT & Co.
Jan. 20. 163 South Water St., Chicago, Ill.

Philadelphia.—On account of the demand for extracted honey in the Hebrew trade, honey has advanced some since last quotations. Fancy comb, 16; No. 1, 14; amber, 11; dark extracted, 6; amber, 6½; white, 7@8. Beeswax, 27. We are producers of honey—do not handle on commission.

WM. A. SELSER,
Jan. 20. 10 Vine St., Philadelphia, Pa.

Columbus.—But little improvement to note in the honey market; trade well supplied and demand dull. Prices are: Fancy white, 12½; No. 1, 10@11; amber, 8@9.

THE COLUMBUS COMMISSION & STORAGE CO.,
Jan. 19. 409–413 N. High St., Columbus, O.

Detroit.—Honey market quiet since holidays. Stock somewhat reduced with no change in prices. Fancy white, 13; No. 1, 11½@12; fancy dark and amber, 9@11; extracted white, 6@7; dark, 5@5½. Beeswax, 25@26.

M. H. HUNT,
Jan. 19. Bell Branch, Mich.

Albany.—Fair demand for honey; we quote No. 1 white comb, 11@11½; No. 2, 9@10; Mixed amber and buckwheat, 7@8½; extracted, white, 7@7½; dark, 6@6½.

MACDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
Jan. 21 Albany, N. Y.

Buffalo.—Fancy white, 11½@12; No. 1 white, 11@11½; fancy amber, 10@11; No. 1 amber, 9@10; fancy dark, 8@8½; No. 1 dark, 7@8; extracted, white, 7@7½; amber, 6@7; dark, 5@6. Beeswax, 28@30. I never knew honey to sell as slowly in January as it has this year.

W. C. TOWNSEND,
Jan. 20. Buffalo, N. Y.

Kansas City.—We quote fancy white comb, 13; No. 1, 12; No. 1 amber, 11; dark, 10; extracted white, 6; amber, 5; dark, 4½. Beeswax, 25.

C. C. CLEMONS & CO.,
Jan. 25. Kansas City, Mo.

Cleveland.—We quote our honey market to-day as follows: Fancy white, 13@14; No. 1, 12@12½; light amber, 11; buckwheat, 8; extracted, white, 7; light amber, 6.

A. B. WILLIAMS & CO.,
Jan. 18. 80-82 Broadway, Cleveland, Ohio

Springfield. — Fancy clover, 15; A No. 1, 14; No. 1, 13; buckwheat, 8@10.

Jan. 19. PERKINS & HATCH, Springfield, Mass.

For Sale.—Fancy white extracted alfalfa honey in 60-lb. cans at 7c per lb.; in lots of 500 lbs. or more, 6½c per lb., f. o. b. cars Denver. Sample by mail 8c.

RAUCHFUSS BROS., Elyria, Colo.

For Sale.—3000 lbs. No. 1 white extracted honey at 7c, F. O. B. Jackson, Mich. Also a lot of white and amber comb honey. W. D. SOPER, Jackson, Mich.

Well, neighbors, what can I buy your honey at in lots of one hundred pounds and up? What is it gathered from? What grade is it? and how is it put up?

T. L. SHAFFER, Lake View, O.

Wanted.—Quantity lots of amber and white extracted honey. Send samples. B. WALKER,
No. 455 W. Van Buren St., Chicago, Ill.

CONVENTION NOTICES.

The 15th annual meeting of the Wisconsin State Bee-keepers' Association will meet February 9 and 10 in Madison. Many experienced bee-keepers will be there. The following is a part of the program:

"What to Do with Unfinished Sections," John Trimberger, Granton. "Working an Apiary for Comb Honey Without Increase," H. Lathrop, Browntown. "Short Cuts in Extracting Honey," Frank Minnick, Baraboo. "Handling and Shipping Extracted Honey," G. W. Wilson, Kickapoo. "Selling Honey," Gustave Gross, Milford. "Comb Foundation," Aug. Weiss, Hortonville. "Advantage of Honey Exhibits," Ed. Ochsner, Prairie du Sac. "Cellar Wintering," A. G. Wilson. "Benefits in Attending Convention," J. Hoffman, Monroe. "State Foul-brood Report," N. E. France, Platteville. "Future Prospects of Wisconsin Bee-keeping," F. Wilcox, Mauston.

A general discussion will follow each topic, as well as the free use of question-box and answers. As many other State Societies will be in session the same week in Madison, there will be excursion rates to all who take receipts for their railroad tickets. Many other topics will be spoken of, so that we feel free to say it will pay you to attend. Please put this notice where you will not lose it, and will remember dates.

F. WILCOX, President.
N. E. FRANCE, Sec'y.
Platteville, Wis.

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The "Bees and Honey" Book.

This is a 160-page book by Thos. G. Newman, formerly editor of the AMERICAN BEE JOURNAL. A paper-bound 50-cent copy of this book we give free to a NEW subscriber who sends $1.00 for the BEE JOURNAL for a year. Or, for $1.25 we will send a copy of the 75-cent cloth-bound edition and the BEE JOURNAL one year to a NEW subscriber.

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Doolittle's "Scientific Queen-Rearing."

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co. $1.00 per Year Medina, Ohio

Vol. XXVII. FEB. 1, 1899. No. 3.

STRAY STRAWS FROM DR. C. C. MILLER

"QUEENSOUND" is a word proposed by L. Kreutzinger to signify that a colony is all right as to having a good laying queen.

SACKS OF BURLAP or other material are advised by Editor York in preference to boxes, for shipping beeswax. Saves freight. [Good suggestion!—ED.]

"LIVE BEES are sometimes shipped on ice, so as to keep them dormant during the journey," says a clipping sent me. Some reporters are well equipped as to imagination.

A QUESTION for discussion at a coming bee convention in Canada is, "Is it desirable to keep down swarming?" Now, how far down does that mean? down to one, or down to three swarms per colony?

J. A. STONE, the genial secretary of the Illinois Association, is optimistic in *American Bee Journal* regarding plain sections. Outside sections in super are filled sooner, ship better, because better filled out to the wood.

HOW TO GET RID of honey, Editor Hill says, is not a matter of so much concern down his way as to get a good price for it. But down our way, friend Hill, getting a good price is only part of the "how" to get rid of it.

IF THOSE WHO SAY *Apis dorsata* can not be domesticated are right in saying it can not live in this country, then its introduction can hardly do any harm. I never believed it could live in the North, but thought it might in the South.

QUOTING what Messrs. Taylor and Mackenzie have said about boiling foul-broody honey, *Le Rucher Belge* says: In presence of such contradictory affirmations which can not be verified till next season, we recommend boiling the honey during the maximum time.

D. W. HEISE and Editor Holtermann seem likely to get into a quarrel as to whether the use of beeswax instead of paraffine, in covering tumblers of jelly, as mentioned in a Straw, would create an increased demand for beeswax. Don't, brethren. The only idea in the Straw was that many a housewife could use beeswax who had no paraffine on hand.

TWO BEE JOURNALS, quoting F. G. Quirin, GLEANINGS, 845, direct that honey in glass, to be liquefied, should be set in the oven of a cook-stove. Some one will try that and have the glass burst and the honey flood the oven. Brethren, why don't you tell your readers that Mr. Quirin has the glass vessels in a shipping-case?

EDITOR YORK has gotten up a very neat little Honey Almanac, containing the honey-leaflet so well known, honey-recipes, and tables interspersed giving the correct times for a properly regulated sun and moon to rise and set, with other useful information. [Ah! I see. Bro. York has anticipated me—just gone and got up a handsome honey-leaflet. See editorial elsewhere.—ED.]

J. E. CRANE'S article, p. 42, is entirely correct, but it only shifts the question one step further back—is the black carried up from the brood-nest into the super caused by travel-stain, or what is it? [I do not believe we can tell where the black does come from—perhaps sometimes from out of the hives; but I suppose that, in the majority of cases, it is chunks of propolis.—ED.]

LATELY it has become quite the fashion to have departments in bee-journals giving items from journals in different languages. L. Joachim is doing excellent work condensing from American bee-journals in that growing French journal *Le Rucher Belge*, and M. Leger from the German; as also L. P. Pirson, in *Revue Eclectique*. W. Fitzky has a valuable department in the German *Centralblatt*, but confines himself to his own language.

BEST HIVE for beginners being asked for in *American Bee Journal*, more of the veterans agree upon 10-frame Langstroth than upon any other. [It is a fact that the call for the 10-frame is somewhat on the increase, as our orders from season to season attest. We may talk about the eight-frame being big enough; but to insist that it is large enough for all localities, all conditions, and all bee-keepers, is foolish, to say the least.—ED.]

ISN'T THAT SMOKE BUSINESS a little mixed, p. 49? C. Davenport says pure smoke is better than smoke mixed with hot air. So it is;

it's stronger. And isn't pure smoke better than smoke mixed with cold air? With the cold blast you are blowing air on the bees, together with what smoke goes along with the air for company. With the hot blast are you not sending out pure smoke? [Hot smoke, as pure smoke as it can be, is the stuff that gives me the best satisfaction.—ED.]

WHAT A WHOLESALE recanter ye editor is, when once he finds he's in the wrong! From thinking 15 minutes enough to boil foul-broody honey he has gone clear up to 3 hours, p. 49. I protest that there is no sort of proof for the necessity of boiling more than 2½ hours. [It is rather humiliating to have to turn "right about face;" but when one sees he is wrong, it is the only honest thing to do. Three hours! why, if two and a half hours is just enough—just barely enough—why not make a sure job of it by taking three hours?—ED.]

I KNEW that something stronger than water was sometimes drunk at Medina, on the sly, but I didn't suppose that the editor indulged so freely that he wouldn't straighten up in two weeks' time. But he still seems fuddled, Jan. 15, p. 41, and insists, just as he did two weeks before, that "wide frames are section-holders without top-bars," and innocently asks, "If not, what are they?" Why, bless your heart, wide frames are section-holders *with* top-bars! [Cart before the horse this time, sure. What I had in my mind, but didn't say it, was this: "Section-holders are wide frames without top-bars."—ED.]

JOHN ARMSTRONG proposes, as spacers, buckshot with nails driven through them. That would give metal spacers, but the lead would not dull the uncapping-knife. But the shot being round, there seems no advantage over staples. Possibly a lead bead could be made that would be a good thing. [I think we make much more ado about the possibility of the uncapping-knife being dulled on a metallic spacer than actual experience with such spacers seems to warrant. I talked with Mr. Frank Boomhower, who uses staple spacers. I do not remember exactly his remark, but it was to the effect that he had no trouble along that line, and that the talk in the bee-journals was based on theory and not actual experience.—ED.]

WHAT IS THERE IN US that makes us laugh at the calamities of others? When I read on p. 60 the multiplied afflictions of Bro. A. I. Root, with crick in back, rubbers off, shoes untied, and nose unwiped, I just lay on the lounge and laughed till I shook all over. [Been there yourself, eh, doctor? But, say; I wish you could do something to make him stay indoors till he gets well. He no sooner feels a *little* better than out he goes again, trapsing around in the wet; gets chilly, goes in, hovers over the steam-pipes, *with his rubbers, overcoat, and hat on*. After he gets well cooked up, and hot, he goes out again; then at night he wonders why he has the neuralgia, the grip, and a lot of other aches and pains. I have been trying to give him some good fatherly (?) advice. Somehow he thinks he is older than I, and ought to know better. He has been having a regular siege of grip with all its attendant pains, during the past few days; and now, contrary to my explicit orders, he is outdoors again. Say, doctor, do you know of any way of mesmerizing him into submission? I wish you would do it if you can.—ED.]

MORE HONEY-DEW was stored last year all over the world than ever before, according to reports. Perhaps honey-dew was no more plentiful than usual, but the scarcity of floral nectar made the bees store what in other years they neglect. [Perhaps; but when there is honey in plenty from the fields, I have noticed that the sidewalks under the trees are not spotted by the spray of the honey-dew as they are during those times when honey is scarce. Is it not possible that Nature has so provided that, when nectar is not secreted in the usual way, because of certain conditions of atmosphere, those same conditions are favorable to the secretion of another form of saccharine matter, or, rather, to the growth of certain insects? You know there is a wonderful harmony in nature. The all-wise Creator has in many ways made one hand to help the other. ED.]

THE OLD UNION has 152 members and $171. The new Union has 465 members and $175. Pity they didn't marry. [Some comparisons are odious, but I hope this is not one of them. The *new* Union has larger annual expenses, owing to the annual conventions, and salary paid to the secretary. All of this money is legitimately used, and is productive of good. The old Union confines its labors entirely to the defense issue; the new Union takes up the whole field, defense and adulteration, besides helping to foster our national bee-keepers' convention, an institution that brings our best men face to face and hand to hand. What we want the Union to do is to use the money for the best interests of the pursuit, and yet keep a comfortable surplus. The new Union has a large membership, and yet enough money back of it to keep it financially in good trim.—ED.]

PICKINGS

FROM OUR NEIGHBORS' FIELDS.

BY "STENOG."

Un pour tous, et tous pour un.—French motto.

One for all, and all for one:
  Such is the motto of the hives;
Why can not men adopt the plan,
  And make more sweet their lives?

AMERICAN BEE JOURNAL.

Mr. Thaddeus H. Keeler says he has "fallen in love with the tall sections."

* * *

Mr. A. B. Bates tells why, in his opinion, Italians store better honey than blacks. It's pretty hard to show he is wrong in the following reasoning:

> Honey is heavier than water, and, as a natural consequence, the richer of the saccharine substance would settle to the bottom; and while black bees during a copious flow of honey might store as much honey (less

the weight of the evaporation of water it contains), the Italian bee, having a longer reach, cleans out the cup of the blossom-cell to the bottom, giving us not only a richer and finer quality from the same bloom, but the honey requires less ripening or evaporation of water. The same quantity when first stored would result, in weight and bulk when ripened, largely in favor of the Italians. My observation is, that the same size of comb when first stored by the Italian is more dense, needs less ripening, and is, therefore, heavier than that of the black.

◆

To fasten foundation into brood-frames, Mr. L. E. Thompson says he saws the top-bar in two lengthwise to within an inch of the end. Slip the sheet in and nail the frame together. E. R. R. says this is a very old idea.

◆

J. A. Bearden, of Tennessee, says a ten-frame hive is better than an eight-frame in his latitude. He describes a hive-tool that seems to me to be a good thing ; but what a pity there is no cut of it ! The description occupies two inches, while a cut would not need to be more than half an inch, to say nothing of clearness, and time saved.

◆

On the first page of this journal, Jan. 12, Prof. Cook gives his views on the nature of honey-dew. The interest with which he clothes the subject makes one wish, as Oliver Twist did for soup, for "a little more." The tenor of the article is to show that honey-dew is not of plant origin, but from the larvæ of insects working in scores. His conclusions are, as stated by himself :

> Honey-dew is always a secretion from insects. It is always wholesome, and often delicious. It may be produced in exceeding quantities, and become the source of much honey. In such cases, coccid honey-dew will often be rank and ill flavored, and should be kept as much as possible by itself, and sold for other purpose than table use. Honey-dew is secreted by insects to serve them in attracting bees, etc., which shall repel the bird enemies of the nectar-secreting insects."

The article goes far toward rendering honey-dew honey more palatable. Wouldn't it be a good plan to avoid the use of such a word as "lice" in speaking of aphides? There's much in a name. Some don't like a fiddle in church, while a violin charms them. By the way, Prof. Cook's idea of a summary at the end of an article is excellent.

◆

C. Davenport, of Minnesota, following the above, gives an account of the remarkable endurance of bees in cold weather. On the 20th of last November, the mercury fell to 18° below zero. A terrific wind blew, and the air was filled with ice and flying snow. Some hives were uncovered, and some tipped over. They were thus exposed from some time in the night till the next afternoon. Although many bees perished, no colony was destroyed. The loss in many hives not disturbed was about as great, however. As bees can work well at a temperature of 104, this shows that they can live without "clothes" in a range of 122 degrees.

◆

"Honey as a Fat-producer" is discussed by Dr. Miller. An excellent half-tone of the doctor is also given; and if the object in showing it is to afford a "word-picture" of the fattening power of honey, then there's hope for those who have become tired of so many "anti-fat" remedies; for certainly our friend looks comfortable. In answer to the question as to whether honey is conducive to fatness, he admits he doesn't know, but seems to think, from analogy with corn and sugar, that it is. Probably, however, the chief value of honey is as an assimilant of other foods. It causes other food to agree with me, and, when used with milk, that is enough of itself to furnish a complete meal. The use of honey rapidly creates a liking for more. A few years ago I could eat only a spoonful, while now half a common section is none too much.

◆

The above was written before I read what is said on page 27 about great honey-eaters. It seems that Mr. York doubted whether three persons ever ate a pound of comb honey at one sitting. Mr. Murry says two often eat that much. Certainly—why not? Evidently Mr. York can't *bear* honey as well as some of us human bruins can. I can eat half a pound of good clover honey at one meal any day, with impunity (or milk without the impunity). But I never eat on a wager nor to show what I can do. I eat to live, and stop when I have enough.

◆

AMERICAN BEE-KEEPER.

The editor strongly favors a test of *Apis dorsata*, and gives a fine view of this bee, greatly enlarged.

◆

G. M. Doolittle follows with an article on that important subject, getting ready for next season. Doolittle can't be condensed, so he must be handed over bodily.

◆

A. E. Manum has begun a series of articles on the proper size of hive. He takes neither extreme, but proposes to show why large ones should be used in some places and small ones in others. Mr. Manum's experience will enable him to handle the question in a scientific manner.

◆

J. Ikeda, of Tokyo, Japan, has an illustrated article on bee-keeping in his country. Their quaint way of bleaching wax, cutting out comb, pressing out inferior honey, etc., is interesting, as the picture shows how it is done. Mr. Ikeda publishes an agricultural journal in his language, with a bee department.

◆

Arizona honey is described by C. A. Hatch, of Wisconsin—a man who knows how to do it. There are three main sources in the valley of the Salt River — mesquite, alfalfa, and wild ground-cherry. He says the average quality of the honey produced there is rather inferior to that of white clover and basswood Mesquite is the lightest in color and best in flavor. But alfalfa is *the* honey-plant. When that fails, all else is minus.

◆

The close connection between good prices for honey and a good salesman is shown by Mr. Hill in the fact that M. M. Baldridge sells five-pound pails of extracted honey in the vicinity of Chicago for $1.20—24 cts. a pound! Mr. Baldridge must be a graduate of some standard typewriter company.

* * *

The editor offers to be one of a hundred who will give $1.00 or $5.00 to prosecute the men who robbed Edward Smith, of Illinois, of his honey, a full account of which we gave in our issue for Nov. 15.

* * *

PROGRESSIVE BEE-KEEPER.

As to burr-combs and width of top-bars, as discussed by G. M. Doolittle, in his "Recapitulation," see editorials in this issue.

* * *

F. L. Thompson, in the December issue, makes a good point in his protest against the persistent advertising of *pure* bees' honey—as if pure honey were the exception, and bees only one kind of creatures that store it. He thinks it creates an unjust suspicion. He well says, "The *only* honey is bees' honey."

* * *

R. C. Aikin contributes Chap. XIV. of his article on hives, here speaking of size, form, and manipulation. Quite likely these articles in pamphlet form would be what Horace Greeley called "mighty interesting reading," and a valuable addition to standard bee-literature. Mr. Aikin's experience is so long and varied as to add weight to his conclusions.

GENERAL CORRESPONDENCE

HE OR SHE.

Confab between Dr. Miller and E. E. Hasty.

Did you ever see such audacity as that displayed by that man E. E. Hasty? I called his attention to the fact that he owed Mrs. Bee an apology for calling her "Mr." Bee, and, instead of promptly apologizing to her, as any gentleman ought, he just gets stubborn, and insists he's going to keep right on being impolite, and will call her "Mr." whenever he likes. See *Review*, p. 365, which I hope you will copy, just to show how naughty he is. I might have let the matter pass in silence if he hadn't told in the last sentence what ails me. I don't think it's nice of him to twit me of it, even if I do like to show off. Lest he should get a following, I hasten to do my best to show his heresies.

"Bible usage, literary usage, and household usage" are claimed as supporting the practice of calling a worker bee *he*. Friend Hasty, why didn't you give us a few illustrations? Suppose we look at the Bible. I think there is no place in the Bible where a pronoun in the singular is used for the word *bee*. The ant, however, is a near neighbor, of which it is said, "Go to the ant, thou sluggard; consider her ways, and be wise." Notice that *her*, Hasty. Also in this: "The spider taketh hold with her hands, and is in kings' palaces." You will find places where the masculine is used to represent both sexes in general, but I have some doubt whether you will find in the Bible any case where the female is referred to and called *he*. I'm just wondering whether this hasn't been a deep-laid scheme of Hasty's to get me to read my Bible.

In literary usage, there comes to mind that classic gem about the bee, which says, if my memory is not at fault,

> How skillfully she builds her cell!
> How neat she spreads her wax!

As to household usage, I think I have yet to hear for the first time a worker bee called *he*—always *it*.

That calf story doesn't count. Those poor misguided boys are not to blame for using bad language with such a man as "Uncle Emerson" to teach them. The only wonder is that that calf isn't called John instead of Dinah. Right in that same line it just occurs to me that I've often heard a male cat called *she*, but I think I never heard a female cat called *he*.

Logically you think the worker should be called *it*, but dislike that on account of stiffness. I don't see that it makes it a whit more limber to say *he*. At any rate, I don't believe you ever hear any one call a fly *he*, nor indeed any other insect, except you and your kind when talking about bees. You always speak of any other insect as *it*.

But *is* the worker functionally a neuter? Her functions are to keep house, nurse the babies, and hustle around to get something to put on the table. If those are neuter functions, then all of our household goddesses should be addressed as *it*.

"Tell you what ails you," Hasty. You've been living so long on one meal a week, taking 12 ounces of honey at a mouthful, that you've become somewhat dyspeptic, and have soured on the female persuasion, else you never would get stubborn and act this way when one tries to teach you your manners.

Marengo, Ill., Jan. 11. C. C. MILLER.

[The paragraph in the *Review* reads as follows:—ED.]

No, comrade Miller, that apology to Mrs. Bee will not be forthcoming. Hasty wouldn't be Hasty unless he could face the nearly unanimous company of his fellow bee-beepers, and smoothly tell them that they are wrong. The habit of calling the worker-bee "she" is a mere fad, not well founded in the facts, not in accord with the best usage of our language; and the rest of the human race not bee-keepers neither follow nor like the usage. Unless I mistake badly, Bible usage, literary usage, and household usage are all three in accord in allowing masculine forms to be used for real females, whenever the matter of sex is immaterial or inconspicuous (especially when the writer desires his reader to ignore it), and still more is this the case with bees, which are not practically females but neuters. At our house they are raising a nice calf. Its name is Dinah. The two little boys of the house and their mother are specially interested in the calf. Now, when Dinah's name is put in a sentence the pronouns must, of course, be feminine; but otherwise masculine pronouns are sometimes heard. "*He* capers." "*He* has very small and quite sharp horns." "*He* thinks it a solemn duty to drink up all that's offered him, no matter how much there may be of it." If I am right this style of speaking is nearly or quite universal; and popular usage, when founded in reason, always defeats in the end even the great grammarians of the language—and Hasty figures that you will be defeated, ought to be if you are not.

What are the absolute facts of the case? The worker (barring a few exceptional ones) is *anatomically* a female, but *functionally* a neuter. If we say "he" we contradict the anatomical truth. If we say "she" we contradict the functional truth. Can't help doing one or t'other. Which, then, is the less important aspect of the two, that we may contradict that? I think that we must say that the anatomical aspect is usually less important. The strictly logical result would be the use of neuter pronouns; but neuter pronouns, used of living things, gives a stiffness to our discourse which is not agreeable. Both speaker and hearer feel better when the pronouns are thrown into the masculine, which is perfectly admissible. Though you paint an inch thick you can't get rid of the ugly fact that readers will feel that sex must be important in some way if feminine pronouns, in non-figurative discourse, are used of an insect; and that is really the most important consideration we have to meet in the case. Tell you what ails you, brethren. You are proud of knowing more about the bee's gender than the laity do; and therefore you must needs be airing your wisdom before them, just as callow preachers air their Hebrew.

[This was submitted to Mr. Hasty, who replies in his own inimitable way:—ED.]

Is that you, Dr. Miller, gnawing at the toes of my cold corpse in the coffin of the "Condensed View"? No more than I expected—and I suppose I must wake up enough to kick a little.

Never yet heard a worker bee called "he" in household usage? This declaration is simply amazing—almost too amazing to reply to. Are we to suppose that, whenever you are in a household other than your own, you do all the talking, and never hear anybody say any thing? (When dead folks do kick they don't kick politely.) I simply wish to appeal to all observant people concerning the speech of our ordinary American folks (bee-keepers excluded), if with them a bee is not "he" a million times where it isn't *she* once—and at least twice as often as "it." The most prominent characteristic of the bee, as impressing children and common folks, is its disposition to give chase, and to sting. It thus gets itself on the same footing as the mosquito—an insect which apiarian households have no special kink in regard to. Now, when a man slaps at a mosquito and kills the game (almost breaking his own skull to do it) he gleefully shouts, "I've got *him!*"—very rarely indeed, "I've got *it;*" never known to be, "I've got *her.*" Manifestly the speech would be the same if a bee instead of a mosquito were the assailant. And please notice how completely the gender is contradicted in the example given. If I am right the mosquito has no neuter form, and the male seldom or never bites. "She" does all the biting, and "he" gets all the maledictions.

What the doctor says about flies and other insects seems to me to be very wild also. Yet if I should quote actual examples of such speech he stands ready to claim that some crank of an uncle, or some queer-spoken foreigner of a hired man, had corrupted the speech of that particular household—won't go at it in that way. There are certain bits of immortal writing which reflect the American household speech, and I'll go for them—not as literature particularly, but as evidence of what our household usage really is. One of the foremost of these home gems is Theodore Tilton's—

Baby bye,
Here's a fly.
Let us watch *him*, you and I,

and so on to the end, stuffed full of masculine pronouns. Note again:

"Will you walk into my parlor?" said a spider to a fly.
. . . . . . Then up *he* springs; but both *his* wings
Were in the web caught fast.

Note again from "The Ant and the Cricket:"

Then away *he* went to a miserly ant,
To see if to keep *him* alive *he* would grant.

Here both ant and cricket are called "he," and the ant is a neuter, or pseudo-female, just like the bee. Note also the beautiful oriental story of Solomon and the *king* of the ants, and its pronouns.

I think I have heard that, among the *prominent* languages of the world (ancient and modern included) English is the only one that pretends to hold out for literal accuracy in the matter of gender, all the rest having idealized their genders almost entirely. And English, I have been trying to show, has gone a long distance in the same direction, or at least in the direction of optionalism, and is now holding out for only so much of literal accuracy on this point as clearness of meaning requires. No live language can stand still; and no language can easily resist the influence of other tongues round about it. Our little squad of bee-writers are trying to reform backward, in a direction counter to a powerful tide, when they want an insect which isn't a female, after all, called "she."

This alleged reform, if it could be successfully inflicted on the language, would at once create an urgent need for some other pronoun than "she" to express the *real* femininity of the queen, and perchance some day a more intense feminine pronoun would come. As an example of this sort of thing, Russian children, being obliged to call the priest "papa," now call their real papas "papinka."

I believe I didn't say that the use of feminine forms was unknown in literature, nor even that it was rare; so citations of that character contradict nothing. What I said was that masculine forms, not in strict accuracy, were fully supported by usage, and that assertion is hardly shaken yet, I think.

As to Bible usage, that is not an important corner of this controversy; but as GLEANINGS has very many Bible-lovers among its readers I should like to talk Bible a little on its own account. I believe that more than half of real Bible-lovers have never got on to the fact that the Bible *always substitutes the masculine for the neuter* in the possessive case of the pronoun. Not a single "its" in all the Bible, when there would naturally be such multitudes of them—always "his." Failure to consider this upsets the meaning of many passages. Readers, when they come to such a "his," do not dream of its referring to the neuter antecedent right at hand, but think it must refer to the Lord, or to some person not plainly in view. Age, as well as sex, is rather violently ignored in the Bible sometimes. "Ye on the sabbath day circumcise a *man*" (that is, a babe eight days old). "Christ tasted death for every *man*." Here it is certain that woman and child as well as man are meant; and, of course, if a pronoun is called for in such a sentence it is masculine: "Man goeth to *his* long home."

When an ant is called "she" it is to answer some poetic idea, not to define gender at all; spider and bee ditto. E. E. Hasty.

Richards, O.

[Our older readers will recognize the name of Hasty as an old friend and correspondent who used to write considerably for Gleanings in the early '80's. He enjoys the distinction of being one of the breeziest and most interesting writers in all beedom.

I am the more interested in Hasty's side of the question, because our A B C has long used the term *he* in referring to the ordinary bee; and A. I. R. has always stuck to that use of the pronoun, and now to have so able a champion as Mr. Hasty is indeed consoling.

Dr. Miller and I have quarreled over this same question not a little; and as a sort of compromise in the last edition of our book I strove to strike middle ground; and wherever I found the pronoun *he* I changed it to *it*. But somehow it took the "life" out of much that is said. Like Hasty I associate with "he" smartness and wickedness; and with "she," softness and goodness.

I am sorry now that I did not leave it *he* all the way through. It might have raised a rumpus with Dr. Miller, but he and I are used to having squabbles.—Ed.]

* * *

BEE-KEEPING IN CUBA.

The Fine Flavor of the Bellflower Honey; No Immediate Danger of Cuban Honey becoming a Competitor of American Honey.

BY W. W. SOMERFORD.

Mr. O. O. Poppleton's article in Dec. 15th Gleanings, "Honey from Cuba, and its Quality," is one of the best articles on the subject, of each and every location, its special flavor and quality of honey, that I have run across from the pen of any one. And, by the way, it was Mr. Poppleton who gave me the first taste of Cuban honey, out at Punta Brava de Guatao, Provincia de la Habana, almost ten years ago; and he it was who gave me my first lesson in Spanish; took me to Havana, introduced me to Dr. Warner, who gave me directions out to Mr. Casanova's apiary, twenty miles from Havana. Mr. Casanova was then one of the leading bee-keepers on the island, having over 500 modern hives, sold to him by Mr. A. J. King, of New York, the man who introduced the movable-frame hive, or modern bee-keeping, in Cuba.

But the worst feature of the introduction was foul brood, from D. A. Jones, of Beeton, Canada, along with some fine queens from him, to Pedro Casanova. As I took Mr. Casanova's apiary on halves for a number of years I know some things about foul brood in Cuba that I am going to tell before I am through writing about Cuba as the bee-man's paradise. And as to the Spanish language, the first few nights I spent on the island, ten years ago, I camped out, and couldn't then ask for a night's lodging or buy a railroad ticket. The language is going to be the drawback to Americans booming the bee-business in Cuba—more so than any thing else, for the few who are there in the swim are going to be troubled so much with beginners' questions that their answers will not always be as kind and plentiful as Mr. Poppleton's were to me. Mr. P. forgot to mention the best trait that I found in the bellflower honey of Cuba, and that is its eating *quantity*. I say "quantity," for the more or the longer a fellow eats it the better he likes it; so when you sell to a customer you're sure of selling to him again, as the Cuban "campanilla" (or bellflower) honey is something fine—too nice, I think, to be compared with basswood honey; for if it is like Texas basswood honey, and you sell a man a five-gallon can of it, you are not apt to sell him any more—not inside of three years.

But all the honey produced in Cuba is not so fine. The honey from royal palm is the bee-keeper's standby, as it blooms every day in the year, and yields a solid stream of honey the year round, sufficient to keep bees booming, except during the 90 days it rains; and as it rains sometimes the full 90 days, without missing a day, the palm honey is washed out so clean and so often that black bees starve by the wholesale in September and October unless fed plentifully when stores run out. I say "plentifully," because it takes lots of feed to keep up eight or ten frames of brood together with a big swarm of bees. But the palm makes up for lost time in November and December by yielding several supers of thick dark honey, about the color of sorghum syrup, with a twang to it that always shows it to be pure Cuban honey in flavor. I mention this, for Mr. Fred Craycraft told me about extracting 700 gallons of pure sugar-cane honey, gathered by the bees from the burnt cane-fields during the first year of the war, the cane being burned sufficiently to kill it. After being killed it cracked open, and, of course, the juice ran out and candied, and the dews and showers melted the candy into molasses, so the bee had nothing to do but bring in the pure cane syrup; and pure it must have been, for the buyers only laughed at Mr. Craycraft when he offered it for sale as honey.

Mr. Poppleton, in closing his valuable article on Cuban honey, says: "Should very many American bee-keepers set up business in Cuba I think Mr. Coggshall, as well as a good many more of us, will find their rivalry a much more serious matter than we shall enjoy." The "seriousness" of competition from Cuba, in the way of honey, looked away off yonder to me, while rambling among the war ruins, and while observing the ropy, infallible evidence of foul brood, as something not very "serious;" and I am afraid I shall die of natural old age before very many Americans "enjoy" or luxuriate on cheap honey from Cuba. In the first place, Cuba is not a whale for size; and in the second place, as nearly as I could see and learn, there is not more than half of it that will do at all to keep bees on, except as a side issue; and side-issue bee-keeping in the tropics, where web-worms crawl 12 months in the year, will never affect such men as Coggshall nor O. O. Poppleton ; for I suppose Mr. P. will be growing Florida oranges in Cuba, and raising honey as a side issue; for fruit is bound to win the day in Cuba.

Navasota, Tex., Jan. 7.

* * *

EXPERIMENTS WITH DRAWN FOUNDATION.

An Interesting Article.

BY PROF. C. P. GILLETTE.

[The following is a paper read at the last Colorado State Convention by the Professor of Entomology, C. P. Gillette, at the State Agricultural College. It was sent us in manuscript by Mr. F. L. Thompson, who suggests that it should have a wider circulation than it would have by being a part of the report.—Ed.]

Last spring I obtained a quantity of drawn comb foundation from The A. I. Root Co., for the purpose of comparing its use in sections with the use of the ordinary thin foundation. In order to make a proper comparison the sections were filled half with drawn and half with plain foundation, the foundation extending about two-thirds of the way down in the section so that the lower third would be, in each case, all natural comb.

There was no question but that the bees went to work more freely upon the drawn foundation. Some of the colonies worked for several days upon the drawn foundation before beginning on the undrawn. They do not, however, begin storing honey at once in the partly drawn artificial cells. They never fail to go over every part of the surface of the cell with their mandibles, so biting and roughening it as to render it more translucent. After the cells had been worked over, and before they had been drawn out further, the thickness was found to be reduced about $\frac{1}{16}$ inch, or, in round numbers, the whole thickness was reduced one-sixth.

Another advantage from the use of the drawn foundation was in the tendency to unite the sides quickly and completely to the section without leaving holes for passageways. Where there is a thin foundation only, this is often done, but the bees seem to be loath to tear down the comb cells for this purpose. It was also noticed that in sections having drawn foundation the combs were, on an average, built more strongly to the sections and with fewer passageways through the sides and corners.

The sections on being removed from the hive were as white and beautiful as any, and I doubt if any but the most notional would detect an unpleasant flavor or thickness in the comb. But if the honey be extracted and the comb washed and examined, it will be noticed that the lower half of the cells, and the septum, are of an amber or beeswax color, quite in contrast to the exquisite whiteness of comb that has been made entirely by the bees.

I found that, after carefully removing the cells from the septum in natural comb, it would require an average of 18.8 square feet of the septum to weigh a pound. From similar computations I found that the septum of comb built from drawn artificial foundation required only 13 square feet to the pound. At the same time I found that the septum of the artificial drawn foundation, after the removal of the cells, would require 21.8 square feet to weigh a pound, which shows that the artificial septum, before it is worked, is lighter than the natural. This seemed to me to indicate very strongly that the bees, instead of thinning this foundation, really thickened it by adding to it.

To further test this point, I took samples of foundation of three different weights, one being a very heavy product of home manufacture obtained from Mr. Frank Rauchfuss ; another was a medium-weight brood foundation, and the third was a good quality of very thin foundation for use in sections. In each case I carefully weighed accurately measured pieces of the foundation before the bees had touched it, and then similar pieces of the septum of comb built on each kind of foundation, and the following table shows the results :—

	Heavy Foundation.		Brood Foundation.		Thin Foundation.		Drawn Foundation.		Natural.
	Fdn.	Septum	Fdn.	Septum	Fdn.	Septum	Fdn.	Septum	
Weight per square inch	10.4 gr. 11. "	7.8 gr.	8.8 gr.	4.7 gr.	4 1 gr	3.7 gr. 2.7 "	2.06 gr. 2.40 "	4.10 gr. 3 20 " 3.86 "	2.05 gr. 2.50 " 3.20 "
Average weight...	10 7 "	7.8 "	8.8 "	4.7 "	4.1 "	3.2 "	2.23 "	3.72 "	2.58 "
Square feet in a pound..	4.5 "	6.2 "	5.5 "	10.3 "	11.9 "	15.2 "	21.8 "	13. "	18.8 "
Weight reduced	25 per cent.		46.6 per cent.		22 per cent.		Inc. 67 per cent.		

WEIGHTS OF FOUNDATION AND COMB SEPTA.

The table shows very conclusively, as do the samples of foundation and comb septa that I here show, that in cases where heavy foundation, or even the thinnest of ordinary foundation, is used, the bees thin the foundation before storing honey upon it.

The added weight in cases of drawn foundation seems to be due largely to thickened deposits made upon the septum along some of the angles, and not to an even distribution of the added wax. These thickened deposits may be quite plainly seen by looking through the comb toward the light. These deposits are much more abundant in some pieces than in others, and just what their occasion may be I can not say. Perhaps the angles at the bottom of the cells are not just as the bee would make them, or perhaps there are other imperfections in the cell that the bees cover over. These deposits are absent in natural comb, and I find very few of them in comb built from ordinary foundation. According to the weighings that I have made, the amount added is equal to about two-thirds the weight of the septum in natural comb, so the saving of wax from the use of the drawn foundation would not be as much as would at first seem.

On the whole I am pleased with the drawn foundation, and would heartily recommend its trial, at least, by the practical bee-keeper who wishes to obtain the largest possible crop of comb honey.

[In commenting on the above, Mr. Thompson adds the following.—ED.]

The samples of foundation and septa which Prof. Gillette passed around were arranged in pairs, each pair clamped at the ends between two pieces of section wood, clinched together with light nails. They illustrated very completely all the points which the lecturer made. In addition there were some sections containing uncapped and extracted comb built from drawn foundation, etc. One of these sections contained a starter of the heavy brood foundation mentioned, the lower edge of which was blackened by lampblack. This had been left but a short time with the bees, so that the cells were scarcely altered: but at the juncture of the foundation with the wood on both sides, and along the V grooves, even the bottom ones, were vivid inky lines, showing that the bees not only thin foundation, but also carry away the wax thus obtained and use it elsewhere.

In regard to the reason why the bees should deposit wax along the angles of drawn foundation, Mr. Aikin thought it might be because the bees always desire to first make the cell-base rounding. This they always do in building natural comb, and in thinning foundation, not making the three flat little surfaces appear in each base until afterward. The high side walls in drawn foundation keep them from going through the rounding-out process in the ordinary way, and so they approximate to it by depositing wax in the angles. Again, bees always make a thick line of wax at the *edge* of what they are working at, whether cell-bases or cell-walls; and thinning is not done unless the portions to be thinned can be got at from all sides. These are not just Mr. Aikin's words, but I think they represent his idea. He is also of the opinion that factory-made foundation is pressed too hard to be easily worked by the bees.

The point occurred to me, which Mr. Aikin agreed with me in thinking important, that a good supplementary experiment would be to make from natural comb an imitation of the artificial drawn foundation, by cutting off the cells on both sides at the proper depth, and putting this in sections; then after completed honey-comb has been built upon it, extract, remove cell-walls, wash, and weigh the septum, just as was done with the septum of drawn foundation after it had been worked by the bees; and compare the results with the septum of worked drawn foundation on the one hand and the septum of *once* built natural comb on the other. If it should prove no heavier than the latter, that would show that the reason bees increase the weight of drawn foundation is in some way connected with its manufacture; but if it should show an increase in weight similar to that which takes place in the septum of drawn foundation, then it would show that there is no use in trying to make more perfect artificial comb, because perfection itself — natural comb — fails under those conditions. I suspect that the latter will be found to be the case, for we know already that bait combs are gobbier than those built while the honey is stored.

Prof. Gillette's table is also of interest in another way, for the "very heavy foundation" he refers to was made on my Rietsche press, and is a little heavier than I succeeded in getting it; and the medium brood foundation is Dadant's make, by the Weed process, and was quite fresh when the test was made. Of this, more later.

Denver, Col., Dec. 19, 1898.

[Mr. Weed replies:]

The fact that the drawn foundation had a thinner septum than natural comb, fully accounts for the thickening mentioned. I find that, where the base is as heavy as or heavier than natural comb, no such thickening takes place. Where the base of the cells is cut clear through, the patching is very noticeable. I don't think it is quite fair to test drawn foundation and ordinary foundation side by side. It is admitted that bees transfer wax from one comb to another, and I am positive that, in some cases, at least, the old style of foundation is the gainer through the proximity of the drawn foundation. Again, it is probable that it is natural for the bees to secrete a certain amount of wax in a honey flow; and where the two styles of foundation are side by side they might use the newly secreted wax upon the old style of foundation where it was needed more than upon the drawn foundation.

Regarding the difference in color, I find that, where wax is reworked by the bees, the yellow tinge entirely disappears; and it seems probable that a foundation with a thin base, and heavy wall, of moderate height (say ⅛-inch), will have every advantage that last season's drawn foundation possessed.

Medina, O. E. B. WEED.

DRAWN FOUNDATION.

A Careful Examination of its Advantages.

BY L. STACHELHAUSEN.

In GLEANINGS for Nov. 1 I find an editorial about your drawn foundation, and it seems you are willing to give up the manufacture of the same. I should be sorry for this, because I still think that this foundation has some advantages if used in the right way. I am the only one of your readers who reported favorably on it, and so I hope you will give me some space to defend my position.

You tell us that Mr. Niver and Mr. Coggshall found, during the buckwheat flow, that the bees draw out and fill the drawn foundation at about the same time as common foundation. I think that any bee-keeper of experience would expect this. It is my practice, and has been for many years, to bring two or three frames with full sheets of foundation, alternating with extracted combs, into my extracting-supers, for the main purpose of multiplying my store of extracting-combs. During a *fast and good honey-flow* the bees work out, fill, and cap these foundations in about the same time as the extracted combs. In a slow and moderate honey-flow they act quite differently. The extracted combs are used first, and the foundation is not used at all; then the cells of the combs next to the foundation are prolonged; and finally, when the bees need more cells, the foundation is drawn, and we have a comb with some honey in it, but only half as thick as a regular comb. If we fill a super with foundation only, the bees are slow in commencing the work in it, and sometimes fill all empty cells in the brood-chamber before they start to work on the foundation. To prevent this we give at least a few frames with drawn combs in the supers as bait-combs. Quite the same thing is true with section-supers. During a good honey-flow, when the bees have already commenced the work in the supers, I have found very little difference whether drawn combs, full sheets of foundation, or starters only were given.

The problem is, to induce the bees to work in the sections. For this purpose bait combs are recommended, and used with advantage. In many cases they are absolutely necessary; but they are not always at hand. For this purpose I think the drawn foundation with natural base even better than natural combs; but it seems you are asking of this foundation still more, and something that no natural comb ever fulfilled. If you are willing to manufacture a combination of drawn and common foundation, you will surely have the same experience; they will be filled with honey at the same time as common foundation, if placed side by side in the same super during a good honey-flow.

The reason why I think the drawn foundation better than drawn combs for bait-combs is as follows: It is a fact that the bees at once repair all empty combs from which the thickened edge is cut off; for instance, extracted combs May be they deem these thin side-walls not strong enough for a foothold. Strong edges are built on the cell-walls. To do this the bees have to cluster on the combs; and this is what we expect from a bait-comb. The drawn foundation is, in fact, nothing else than a comb from which the strong edge is removed, and for this reason it is especially fit as a bait-comb. If you will read my article in GLEANINGS for July 15 you will see that I recommended this foundation for bait-combs only, and I foretold the experience of Mr. Niver and Mr. Coggshall when I said that, under certain conditions, common foundation is drawn and used for storing honey at the same time that natural combs are used by the bees. Besides this, if these two gentlemen had filled the super with common foundation only, I am not quite sure whether the bees would have worked as soon as they did when a few sections with drawn foundation were in this super. When they worked at once on all sections, it is no proof that the drawn foundation did not work as a bait.

I am fully convinced that we often use drawn combs when the bees would build out foundation without cost, and that we just as often use full sheets of foundation when the bees would build combs from starters in the same time, and would store the same amount of honey in them. It is just the same with drawn foundation. Its use can be of great advantage at proper circumstances, and under other conditions it may have no advantage over common foundation, and not even over starters.

So the experience of these gentlemen does not prove any thing against the drawn foundation; and if the manufacture of the same is not too difficult you surely should not give up something that, in my opinion, will prove to be a great benefit to the comb-honey producer.

Converse, Tex., Dec. 12, 1898.

[I submitted this manuscript to Mr. E. B. Weed, who, after reading the same, wrote this reply:]

Mr. Stachelhausen's article is evidently the result of careful and prolonged observation, and I agree with his conclusion that the value of foundation depends largely upon the conditions under which it is used. If the drawn foundation with a natural base had been on the market early last spring I feel confident we should have had plenty of favorable reports.

The experience of Mr. Vernon Burt is a case in point. I took him a number of sections filled with drawn foundation to test; but his first supers were already full. He willingly consented to put the new product side by side with ordinary foundation in the second supers, but said that, toward the latter part of a honey-flow, he had noticed that ordinary foundation was often as good as drawn combs. For the first super, however, he places a high value on the latter. As he had predicted in this case, both kinds of foundation were finished simultaneously, but he still agrees with Mr. Stachelhausen as to the value of drawn foundation early in the season. Mr. Danzenbaker ordered enough drawn foundation to fill a thousand sections, in time to use it for the first honey-flow last spring, and his report is very favorable indeed. In this case it was both begun and capped much sooner than ordinary foundation. Mr. Stachelhausen has noticed that drawn foundation is in some respects better than natural comb. I believe we can go a step farther, and do better yet. From my point of view the ideal foundation should have a base as thin as natural comb, and enough wax in the wall to materially assist the bees to construct the comb. We have had foundation-mills that would make foundation with a base almost as delicate as natural comb, and we have had mills that would make foundation one-fourth of an inch thick; but a heavy base has always gone with deep-cell foundation, so that it could not be used in the sections where it is most needed.

I expect to produce a foundation with deep cells and a thin base, and am confident that its advantages will at once be recognized.

E. B. WEED.

JAMAICA NOTES.

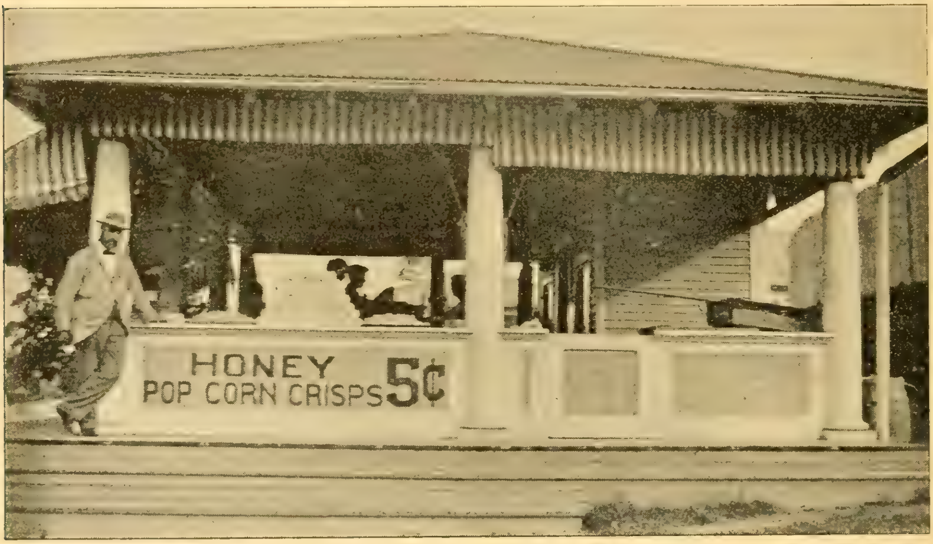
The Honey Flora of that Island; Drawbacks, etc.

BY H. G. BURNET.

We have had perfect weather, apiculturally, for the past year, and bees have done very well indeed where proper care has been exercised. Just now they are booming on logwood and "Christmas pop" bloom, both of which yield an abundant supply of fine-flavored light-colored honey, fully the equal of clover. Christmas pop is the bellflower of Cuba, from which such large yields are secured. We have it all over this island, and have the logwood also, which Cuba does not have, which is unexcelled as a source of honey, and never fails. The bellflower begins in November, and the bees build up good and strong, so that, when the logwood begins the latter part of December or early in January, it all goes for surplus. The bellflower is a white morning-glory, and yields an abundance of pollen as well as honey—so much so that the bees look as if they had rolled in flour, and it is comical to see them come into the hives. Fully half will bump against the hive and fall on the ground or grass, where they will stop long enough to give their eyes a few vigorous rubs to get the pollen out, then fly in all right. Bellflower and logwood last for about three months. One peculiarity of logwood is that it does not bloom at the same time in all parts of the island, and in some parts it blooms twice, so that migratory bee-keeping would be profitable.

On the dry plains a splendid quality of honey is obtained from the cashaw, a variety of acacia, which thrives only in dry locations. There is hardly a month in the year when we do not get more or less surplus. Of course, there are drawbacks. We have almost no local market, and have to ship to London; but honey properly put up and graded will net from 3 to 5 cents per pound, which will give very profitable returns to a "business apiculturist"—a *specialist.*

Toads are a great nuisance, and bees must be on stands at least two feet from the ground or the toads will get at them; and as our toads are of the Surinam variety—about the largest in the world—they can stow away an enormous number if they have free access. I have known them to travel at least three hundred feet and back in one night to an apiary; and sometimes very early in the morning, during bellflower bloom, I find them in front of the hives to snap up the dusty-eyed workers that fall in the grass.



A HONEY-POPCORN PAVILION. SEE EDITORIALS.

Apiculture is being boomed in the island lately, and the supply-men are reaping a harvest. "Root's goods" are the only kind imported. Some amateurs are going in quite heavily, and will possibly gain experience and lose money in proportion; but for the specialist I know of no better place in the world, all things considered.

At a recent apicultural fair Root's goods were shown; also Italian bees and queens; an extractor in operation, etc., all of which attracted a great deal of attention, and kept the genial exhibitor, Mr. Doidge, busy replying to the many queries from the people who crowded about. With all the bee-keepers we have we should have an organized society for the benefit of the fraternity.

Now, Uncle Amos, the next time you travel we want you to come to Jamaica. You will see plenty of springs, water power, waterfalls, caves, irrigation works, magnificent scenery, gardens (we have Earliest berries, ripe now), and as many hospitable people as you ever found anywhere. Won't you come?

Linstead, Jamaica, Dec. 22, 1898.

[Thanks for your very kind invitation, friend B. I have been talking about Jamaica and the neighboring islands; but I confess my enthusiasm gets a damper when I think of being seasick, not only 48 hours, but almost a week. Perhaps I might go down to Florida by rail, and thus get around old Neptune a little. I should be very glad indeed to visit your tropical island.—A. I. R.]

THOSE HONEY-LEAFLETS.

When and Where Not an Aid in Selling Honey.

BY J. L. HYDE.

I see by GLEANINGS that you wish reports on the honey-leaflets. I have used them to some extent, but not as often as I shall in the future if I try to sell honey. I have distributed them with the honey sold, at people's houses, while selling honey from door to door, and by leaving them at the stores when I make a sale of honey. I can't say that I received many responses from those that were sent out with the honey; for if they liked my honey they would buy again; but if not, nothing that they would read or that I could say would induce them to buy any more. I know where I have left them, when on my first journey selling honey, the people that refused to buy at first would buy on my second trip. I can not say that the leaflets sold the honey, though; but it seems to me that, if you leave something with your name on while on your first journey, they would have more confidence in you when they see you the second time, whether they read all in the leaflet or not. In regard to leaving them when selling honey at the stores, I have but one report to make that would go to show that they did any good.

This one is a fish-dealer, and carries my honey put up in 1-lb. jars on his wagon while peddling fish. At first he was met by people who complained that it was cheaper to buy it without the jar, as somebody was selling 4 pounds for $1.00 put up in some kind of a tin pail, taken right from the bees, while he sold mine for 20 cts. per pound with jar. He said that the one who had it put up in tin pails could sell his while mine would not sell, because it would seem to the one who bought it as if it had been "monkeyed" with; so I put him up some of my honey in three and four pound cans so that he might sell them for 65 and 75 cts. per can. He reported, a short time after, that, though he could not sell any honey in the cans, the scheme, together with distributing the leaflets, killed the other man's trade and boomed his own; and a while afterward he reported, while I was talking with him about his increase in his honey sales, that those leaflets were what started the honey going. He said he printed his own name on them, which advertised his business as well. I think that the honey-leaflets are all right as an advertisement; but if something about how bees make honey could be added to it it would make the reading still more interesting, so that they would be more sought after, for very few people know how honey is made, and they are greatly interested when talking to them about it.

Providence, R. I.

THE DICKEL THEORY.

Selection from the Proceedings of the Wander-Versammlung of the German-Austrian and Hungarian Bee-keepers.

BY F. GREINER.

The convention was held in Salzburg, Austria, September 4–8, and about 300 bee-keepers attended. From the proceedings I select but two addresses, and can give these only in extract. Dr. Dzierzon, as the first speaker, gave his views and ideas about as follows:

> We celebrate to-day the 43d Wander-Versammlung. Really it should be the 49th, for we organized in 1850, in the city of Arnstadt; but on account of three wars occurring, six years were passed by without holding a convention.
>
> The bee-keeping industry has made more progress during these nearly fifty years than it had before in many centuries. Men holding opposite views, meeting one another face to face, soon found out the true state of things, although some wrongly conceived ideas and theories were uprooted only after long fierce battling. For instance, it was believed, even by Baron von Berlepsch, for a time, that the queen laid only the eggs for workers, and queens, but not for the drones. Drone-laying workers were believed to attend to that.
>
> Feb. 13, 1853, I received the first colony of Italian bees, and soon after, the matter was easily sifted to the satisfaction of everybody. In the following fall I sent two Italian queens to Berlepsch, and soon after that he had the satisfaction of seeing yellow drones emerge when there was no possibility but that the eggs that produced them must have been laid by the queen, for all worker-bees were black. The introduction of the Italian bee helped to prove, also, that the queen meets the drone outside of the hive. It helped to unravel other mysteries. It was not well understood that the queen should be able to determine the sex of her offspring. I discovered that drone eggs did not require the fertilizing influence of the spermatozoa, but would produce drones without. I then concluded that the laying of fertilized eggs (producing queen or workers) and the laying of unfertilized eggs (producing drones) was subject to the queen's will. Our noted scientists have assented to this theory. No doubts were expressed for many years till now by Dickel. He asks: "Where in all the world is there another such case where a mother can determine the sex of her offspring?" But what of that? Even if the queen should be the only exception in nature she does it, and therefore she has the ability. All of Dickel's experiments prove nothing. His whole theory is without foundation. I think it would be desirable that no more time be wasted with it.

According to the program, Dickel was not to speak till the next day. He then made his reply, which in substance was about as follows:

> For many centuries the people in general, and especially the scientists, have been marveling over the mystery of how the sex of offspring is decided. Even the bee-keepers have tried their hand to solve this question; but it seems so far they have stood outside of or in opposition to the known laws of nature. Before I develop my new theory, allow me to briefly state the old, to which we have held:
>
> "In 1854 Dr. Dzierzon reasoned, based upon his observations, that the mother-bee has the faculty of laying impregnated and unimpregnated eggs at will. From the first named, female and worker bees develop; from the latter, males or drones."

Indeed, it is beyond any doubt that eggs from laying workers, or unmated queens, that can not have received any spermatozoa, do produce drones. but this does not yet prove that, under normal conditions, drones are produced from unimpregnated eggs. However. something happened in 1855 that compelled all who were antagonistic to the Dzierzon theory to hold their peace. Prof. Siebold discovered, after careful microscopical examinations, that eggs taken from worker-cells contained sperm; eggs from drone-cells, not. Since there was no greater master to oppose Siebold, the matter has rested there, scarcely any objection having been raised since. But I acknowledge only one master, and that is penetrating observation—the true natural science.

It is sometimes said that nothing new or of importance has recently been offered in bee-science; but that is not quite true. For instance, who of the older scientists knew any thing about transferring eggs and larvæ? Well, with the help of these "kinks" I was enabled to prove what for a long time had been my conviction; viz., that a normal queen lays only impregnated eggs, and that it is the mission of the nurse-bees to decide whether queen, worker-bee, or drone is to be the outcome. You may imagine that a great many experiments had to be made before I found the desired proof. My greatest difficulty was to transfer eggs successfully. As last I did succeed, using for an instrument a needle bent at the point.

I ask you to see for yourself, and repeat the following experiment: Transfer perfectly fresh eggs from a drone comb to a worker comb. and give this to a colony that has been queenless long enough to have become somewhat apathetic. The bees will not accept transferred eggs, but tear them out. The development of these eggs will show that workers and queens may be produced from drone eggs.

Another experiment, still easier, is the following: Remove from a drone comb all larvæ, and replace with just hatched larvæ from a worker comb, and give the one thus prepared to a colony under the same conditions as before. You will then see queens and drones hatch from the impregnated or worker eggs, even after they had hatched out. Any one may make these experiments and convince himself.

If we, then, bring the proof that the male as well as the female individuals originate from the impregnated eggs, we add nothing to natural science. This has been known for a long time. It has been denied only by us bee keepers. Different, however, is it with the question, "What influence controls the sex of the offspring?" Scientists have held that all eggs are alike from the beginning, having the male and female rudimentary beginnings side and side, the act of coition deciding which of the two elements is to develop. Reasoning from the outcome of our experiments, what are we to say in this matter? Through Dzierzon we know that unfertilized eggs produce male offspring; and Berlepsch expressed this theory, "All eggs have from beginning the male tendency." We can now enlarge and perfect the theory by adding, "By the spermatozoa that each egg receives as it is being laid, it receives with it the female tendency, and both are then represented in equal strength." If you will repeat my experiments you will become convinced that the workers must and do decide in which direction the egg is to develop, one or the other remaining dormant. If we herewith bring the proof that not the act of coition decides the sex of offspring, but another factor, then we have brought out a new truth for which we shall receive due credit.

Although Dr. Miller said about the Dickel theory in substance, "We can afford to let them fight it out across the water; no use of our wasting our efforts," I will not criticise the doctor. However, to me this fight is exceedingly interesting; and, though I am not able to take an active part therein, I have followed it very closely, and the reader may excuse me if, in the foregoing, I have given at least a few glimpses of the battlefield.

Naples, N. Y.

[Some little time before this we received a communication from Dr. Miller, relating to the same theory. He briefly stated the Dzierzon position, and also that of Prof. Dickel. As both of these positions are a little more fully stated above, I omit that portion of the doctor's article, giving only his conclusion; and this conclusion I am quite willing to adopt as my own.—Ed.]

It would take many pages to give all the arguments that have been advanced in support of the theory, and also in rebuttal. It hardly seems wise that page after page of Gleanings should be occupied repeating what has been said in the German papers. If a considerable number of Germany's able investigators should embrace the new theory, it may then be time to give the reasons why we should become converts on this side. On the other hand, if it should turn out that Dzierzon is right in characterizing the new theory as rank nonsense, it will be well that so many pages have been saved for better use.

For some reason Germans are more rich in theories than Americans, and we owe them much in this regard; but it would hardly be profitable to keep fully informed as to all their theories. Some of them are no more profitable than an American theory that lived its life of several months in the year 1861, when the first volume of the *American Bee Journal* was published. E. Kirby, in order to avoid the acceptance of the theory of parthenogenesis, put forth the theory that the workers alight on the drones' backs when in flight, causing them to give off their semen, which the workers lick up and carry to their appropriate cells in their hives, for the purpose of propagating the young queens. This makes the queen all right to lay drone eggs, but she must meet the drone to prepare her for laying eggs of the other kind. That this theory should have received as much attention as it did, seems rather strange at the present day, for it was discussed in several numbers, occupying in all some eight pages.

A correspondent sends me a conundrum something after this fashion: Suppose a worker leaves a foul-broody colony and goes to the field, gathers a load of fresh honey, and on returning enters a wrong hive occupied by a healthy colony. Will that load of honey give foul brood to the healthy colony?

Without being too positive about it, I should say that the disease would not be thus given. Bees are economical of time and strength; and, if I am not mistaken, when a worker goes to the field it starts with an empty honey-sac, and when it returns from the field it has in its sac only the nectar it has gathered since leaving the hive.

There may be some danger that a young bee taking its first playspell might carry affected honey into a neighboring hive; but the great danger is that bees of a healthy colony may themselves carry the disease by robbing the diseased colony. A tenth of a drop of honey thus carried, if no attention is paid to the matter, may be enough to ruin a colony.

C. C. Miller.

[I have had considerable experience along the line of the question asked by your correspondent. I found this to be true: That whenever a colony, perfectly healthy, faces in the same direction near another colony that was diseased, I was almost sure, sooner or later, to find foul brood in the healthy stock. This happened so many times that we came to accept it as a matter of course that all colonies having entrances facing the same way, and near each other, would be either perfectly healthy or diseased. If one got it, the other was sure to get it later.

I do not know that this is a direct answer to your correspondent's question, but it certainly has a strong bearing on the point. It is true, that young bees might account for all the phenomena I have described; for, of course, these young chaps make a good many mistakes, and young bees are acceptable in any hive.—Ed.]

TWO POINTS ON LARGE HIVES.

Strong Colonies at the end of Winter the ones to Get the Honey; Working Bees for the Harvest, and How to Get Them.

BY ADRIAN GETAZ.

Some time ago an invitation was extended to the contributors of Gleanings, requesting them to give their opinions on the subject of "expansion versus contraction." So far only the Dadants have responded, by an able contribution on the advantage of large hives and correspondingly large colonies. They have so well covered the subject that nothing needs to be added so far as the practical side of the question is concerned. There are, however, two points that are worth a careful investigation.

I think it is unanimously agreed (or practically so) that, by the time the main honey-flow comes, the brood-nest ought to be full of brood and honey, so that, when the flow comes, the honey would necessarily go into the sections. So far, so good; but is it sufficient for the best results? Not in my locality. With me the colonies that are the strongest at the beginning of the season or at the end of the winter are those which give the most surplus, regardless of the fact that those which were weak at the beginning may have their brood-nest just as full as the other when the flow comes.

That puzzled me a good while; but after I had thought the matter over and over, the thing appeared to me very simple and very natural. In order to get the largest surplus possible, it is necessary, not only that the brood-nest be full, but also that the number of the *field bees* in the hive should be as large as possible. How can that result be attained?

Suppose the honey-flow begins July 1st. The worker-bee emerges from the cell three weeks after the egg is laid. Two weeks after, she begins her field work. This field work lasts four weeks, and then she dies. These numbers are, of course, only approximate averages, but close enough to answer the purpose. It follows, then, that the oldest field bees in the hive July 1st are those that hatched from eggs deposited nine weeks before — that is, April 28th; and the youngest, those from eggs deposited five weeks before July 1st, or May 26th. So in order to have the largest number of field bees July 1st it is necessary that the queen should lay her full capacity of eggs from April 28th to May 26th. This means practically a full brood-nest already, April 28th, and one of sufficient size at that, and also a strong colony. Can that be done with a weak colony? Evidently not. Let us now begin the problem at the other end.

We will suppose that the bees are taken out April 1st. For the first few days only a few eggs will be laid. Probably a week or so is practically lost. Three weeks will elapse before any brood emerges, and the old bees will be dying all that time. The bees emerging during the first week following will not more than make up for the number dead since the colony was taken out; so it will be fully five weeks before the colony will begin to increase over what it was at the start — that is, about May 5th.

Now, is it not plain enough that, unless we have strong colonies at the beginning, it is impossible to have a very strong force of field bees at the opening of the honey-flow?

And what does that foolish talk about "useless consumers" we hear so often amount to? No, sir; these "consumers" repay a good deal more than their board when the following spring comes.

In using large hives and large colonies it is absolutely necessary that swarming should be controlled Unless this is done the large hives are a failure. If swarming occurs, neither the swarm nor the parent hive will be able to do more than regain its normal strength during that season, with all the chances that the process may be repeated the following year. In working for extracted honey it is easy to prevent swarming. All that is necessary is to have enough empty combs so that there will be ample room for the queen to lay in, and for storing the honey gathered. When this condition is fulfilled, only a very few swarms will issue, and these only in case of supersedure of queens. Even that could be prevented if the apiarist would take the trouble to renew the queens every two years.

In working for comb honey the case is a little different. By giving plenty of sections filled with foundation we can, under ordinary circumstances, obtain the same result as by giving empty combs, for it takes but little time for the bees to draw the foundation and get room to put in the honey coming from the field.

But it is not always so. In the first place the building of comb is done, in great part, during the night; and if we add too many supers the bees will not be able to maintain a temperature high enough in the supers to draw the foundation and complete the comb. This can be obviated to a great extent by outer cases and packing, inclosing not only the brood-nest but the supers, at least until the weather is warm enough to dispense with them. If, to economize the warmth, we give only a few sections, there will not be room enough to prevent the crowding of the brood-nest and the subsequent swarming.

But even with enough room and enough protection, in many localities the honey-flow comes so suddenly and so abundantly that the brood-nest is necessarily clogged with honey, and swarming will ensue, at least with some colonies.

This, for years and years, was for me the *bete noire* of bee-keeping (Dr. Miller or R. L. Taylor can tell you the meaning of *bete noire*). But now I can control the swarming completely, and I have the choice between two (or, rather, three) different methods of doing it. The one I am going to advise is not the one I prefer, but it is on account of the peculiar conditions in which I am placed.

It is not necessary to prevent the actual swarming. The increase is what must be prevented; that is, we want to keep as many bees (or, rather, field bees) in each hive as we can possibly get. In the first place, have plenty of room — that is, of sections full of foundation — at least a few days before the honey-flow begins, and well protected by outer cases and packing, so as to insure plenty of room for the surplus, and sufficient warmth for comb-building during the night as well as during the day. Perhaps no swarms will issue, perhaps several. When a swarm issues, return it and kill or remove the queen. Put an entrance-guard before the hive, and let the young queens fight it out among themselves until only one is left, then remove the entrance-guard and let her out to mate. By that time the swarming-fever will be over.

The ordinary entrance-guard will not do. The drones in the hive will blockade it almost completely in trying to get out. I use queen-traps with a wire-cloth cover instead of tin. The light shining through the cloth attracts the drones in the upper story, and they come up almost at once, and are out of the way of the workers.

When the young queens emerge, swarming will be resumed; but the trap will prevent the queens from going with the swarms, and, of course, the swarms will return. In order to permit the young queens to go back to the hive it is necessary to remove one of the cones of the trap, or have a hole by the side of the cones. That hole can be provided with a slide, in order to close it when it is desired to catch the queen or the drones. In fact, all my traps are provided with such a hole and a wire-cloth cover. It will take but a few days to determine which queen will remain, for, when the swarm is out, the cells are left almost unguarded, and the young queens will come out during that time and settle the question, and also succeed in destroying the remaining cells.

What has become of the "admiration society"? The way the brethren have lately been whacking each other does not show very much admiration.

Knoxville, Tenn., Dec. 28, 1898.

[Yes, indeed, there is a difference between strong colonies. One may be numerically as strong as another; but one may contain much the larger force of bees of the right age to gather honey. In this question of large or small hives we should not, of course, overlook the matter of a large force of bees of the right age to gather honey. Doolittle has called attention to the importance of this, over and over again; and I do not know but we ought to reiterate it on the housetops.

Your practical conclusion, then, if I understand you, is this: That colonies should be as strong as possible the *fall before;* and to make up for a certain necessary loss in each colony in wintering, brood-rearing should begin early in the spring; and, if your figures are correct, the brood nest should be full by the 28th of April. Unfortunately that is too early for most northern States. We usually can not get our hives full much before the 15th of May here. As that would not leave us time enough to get the requisite force of working bees, I see no other way than that the colony should be very strong the fall before.

If the main honey-flow for most of the northern States would come on about the middle of July or the first of August, the problem of strong colonies would be more simple.

Your method of preventing swarming, or, rather, of keeping down increase, struck me very favorably at first. On second thought I fell to wondering if colonies with young queens *trying* to swarm, and being balked, wouldn't be inclined to fritter away valuable time. I have tried controlling swarming with perforated zinc; and my experience is that, when a colony is thwarted in its effort to carry out its natural instincts, it will sulk right in the midst of a honey-flow.—ED.]

LARGE HIVES.

Answer to the Editor's Question; Large Hives Necessary for Full Capacity of Good Queens.

BY C. P. DADANT.

Mr. Editor:—In your last comments you ask me whether I think the eight-frame hive is large enough to accommodate the breeding capacity of the average good queen. Emphatically I will say *no*. Neither do I think that the bee-keeper who makes any tests at all, no matter who he is or where he is, would answer the question in any other way. My experience is that about one-third of the queens are crowded in a ten frame brood-chamber, and that not over one-tenth of the colonies can be sufficiently accommodated with breeding-room in an eight-frame hive; while perhaps only two or three per cent of the healthy queens would find this hive too large.

Perhaps many people will disagree with me, who have never used any thing larger than an eight-frame hive, because they judge of the possible strength of a colony by the experience that one may get with such a hive. I beg leave to say that it is next to impossible to judge fairly of this question without first giving a trial to large brood-chambers the year round. It is useless to expect as populous a colony for either spring, summer, or winter, on an average, in a small hive, as in a large one. One might as well expect as large a colt from a pony as from a Norman mare. A greater cluster, a larger space, and a greater amount of stores are bound to produce, with a queen to match, a more satisfactory colony.

There is one item which we have not considered. I have often heard it said that the size of the hive was a question of locality. Whether there is a point in this remains to be tested. It is quite possible that, in countries where the winter changes suddenly, and in a very few days to summer, the prolificness of queens may have but little chance of becoming fully developed. If such were the case it would indicate that northern countries could better adopt small hives than southern latitudes. But in my mind this is debatable. A strong large colony, wintered in a cellar, ever so far north, if safely wintered, ought to be able to develop the prolificness of its queen within a very short time; and as it takes only 22 days for the worker bee to hatch, a space of two or three months would be much more than ample to repopulate a hive to its utmost. Are there very many localities where the height of the honey-flow does not last beyond 60 to 90 days after the opening of spring.

I thank you for your kind words on my arguments. I have really said more on this subject than I expected, and I shall be very glad if the subject proves of any future use to the bee-keeping public at large. I can assure you, however, that, in any case, we are with the large hives ourselves, to stay.

One word aside from the subject of bee culture. I see on page 11 that you mention the question of government ownership of railroads. That has been one of my hobbies for a long time. Don't understand me as being one of those cranky paternalists who expect the government to take possession of every thing, and even grow our wheat for us, but I do believe that the only solution of the transportation question, which is now agitating the whole country, and the big centers more than the rest, lies in the *management* of public services by the public. We are daily brought to see that the transportation companies become more and more of a power, more and more of a tax, and there is no possible solution except the managing of the railroads, of the telegraphs, and of the telephones, by the same straight, economical, and wise method as that of the mail service. But we must first destroy the spoils system, or run the risk of seeing our beloved republic become corrupt, and sink, much in the way that the Greek and Roman republics did in past centuries.

[I indorse every word of the foregoing, even to the matter of government control of railroads; but this latter question is not debatable in GLEANINGS, for such questions should be discussed in papers devoted to those subjects.—ED.]

E. C. M., Mass.—There is no reason why you can not keep bees near the sea. If you have had unusual loss it must be due to other causes than the weather; but when bees are kept near bodies of water they should be protected thoroughly from prevailing winds, either winter or summer.

RAMBLE 160.

Scott Valley; Among the Miners.

BY RAMBLER.

Scott Valley and its outlying arms, one of which is Oro Fino, is eminently a little world in itself. A rugged divide known as Indian Hill separates it from the conveniences of a railroad and modern civilization, and all supplies from the outside world have to be freighted over said divide in those great wagons and by many teams.

The alfalfa hay grown here is all fed out to the stock in the valley. If there are not cattle and horses enough in the valley to consume it they are driven in from other portions of the State, for it is cheaper to drive the cattle to the feed than to freight the hay to the cattle outside. The farmers grow their own wheat, and it is ground in their own roller mills at Fort Jones or at Etna.

The butter and cheese produced in the valley are largely consumed there, for the miners on every mountain stream are not producers of food, but their hard labor makes them large consumers, and a large amount of their shining metal gets indirectly into the hands of the farmer

It is hardly possible that a railroad will ever be built into the valley, for it is not large enough to produce a surplus of either population or products to sustain one; furthermore, the farmers are content with things as they are, and do not want a railroad; and, though they talk hard times, there are no people with whom I have come in contact who are so exempt from hard times.

In religious matters the people are in what might be termed a primitive backwoods condition. This is especially the case in Oro Fino. There is a little church, but no regular pastor. The preaching is given by ministers from Fort Jones or Etna. When I went there in April the services were held at three o'clock P. M., but the baseball game which came off every Sunday afternoon at the same hour so depleted the audience that the services were held during the rest of the baseball season on a weekday evening.

Dancing seemed to be the chief amusement of the young and middle aged, and a fine new dancing-hall was built during my sojourn, and the floor was kept well warmed with tripping feet.

The disregard for the Sabbath might come from the way the mines are run, for there is no Sabbath in a mine. The hydraulic giant is washing down the hillside night and day and every day of the seven; or if it is a quartz mill the stamps keep up their clamor in like manner.

This example set by the mines seemed to be contagious; and the work on the ranch, though eased up a little, goes right along with more or less vigor. On due occasions, however, these people are generous, even to prodigality, and we might easily scare up a Bret Harte angel in any of these mining-camps. Another redeeming feature with the Oro Fino people is the absence of the saloon. Topers have to go to Fort Jones for their liquidation. So much, then, for Scott Valley and its people. Continuing the theme of bee-keeping I will call attention to the various bee-keepers in the valley, and their methods of management.

Jake Lewis, about a mile north of us, owned an apiary of about sixty colonies, all in Harbison hives. In early days, when Oro Fino was a more numerously populated town, he gathered the golden coin by fiddling for the miners; and instead of spending it, as many such men do, at the saloon or card table, he hoarded it, and now in his old age owns a large and fertile ranch. Uncle Jake had also, in his younger days, been a famous bear-hunter. Scores of bears and deer have fallen before his trusty rifle.

His method of securing honey was in those old-fashioned twelve-pound boxes. They were put on the hives early in the season, and taken off in the fall. As there was no glass in the ends of the boxes, whereby their interior condition could be examined, the fullness of the box was determined by rapping upon it with the knuckles. If it gave the proper sound it was removed.

Mr. Moxley, ex-sheriff of the county, and a wealthy farmer, also had a small apiary, with Harbison hives, and managed them in the same old-fashioned way, with the exception that he depended upon some outside aid to remove the honey. I had the pleasure of aiding him, and learned how to find a full box by the rapping method.

There were several other bee-keepers who managed their bees in this primitive way; and when I first took up my line of work in the valley I feared that so many bees in the immediate vicinity might make our honey-yield somewhat less; but I find that bees managed in that manner are not much hindrance. The bees were not worked to their highest capacity in honey production. They fill their boxes early, and then swarm and loaf on the hives. Many swarms escape to the woods; they are in evidence in many trees. One of Uncle Jake's sons has developed into a bee-hunter, and has found and put his mark on over thirty bee-trees in the vicinity. The bee-keeper who works his bees according to modern methods is the only one to fear in such a field. We had such bee-keepers in the valley. Well up at the south end, and out of range of our bees, I found Mr. Charles Oltman. Sixteen miles intervened between us; and upon my first visit to his apiary, about May 1, I found his bees at work in sections while the Levering bees were not making a living. The reason for this prosperity, I found, came from an abundance of wild-cherry, willows, and locust, which were not so plentiful in our end of the valley. Mr. Oltman commenced the season with 140 colonies and increased to 160. His enthusiasm, however, for early honey was considerably subdued; for, during the interval between the blooming of these plants and alfalfa, there came a cool frosty term, and the bees consumed all of their early honey. Mr. Oltman is not discouraged over these little circumstances, but will enlarge his business another year by starting another apiary. His bees were in the L. hive, and, having heard much about large hives, he constructed a few having 16 frames. He seemed somewhat disgusted with the jumboes, from the fact the bees swarmed from them before they had filled all the frames.

Mr. Oltman is an enthusiastic gardener, and supplies the people far and near with his products from soil and hive. He is, furthermore, a good-looking bachelor, quite popular with the ladies, and is bound to be successful.

E. G. Gerbrich, at Fort Jones, in another portion of the valley, is another bee-keeper who will make his mark in honey production.

One bright Sunday morning I was sitting in the cabin door, when, slowly approaching across the lawn, I saw a young man and feeble old woman. He was tenderly supporting her upon his arm, restraining his energetic pace, and patiently conforming to her slow motion. I arose as they approached, and he introduced himself and then introduced his mother.

I immediately felt a deep respect for Mr. Gerbrich; for, of all the beautiful things told by tongue or pen, there is none more beautiful than the story of reciprocal love between parent and child; and here before me was a scene that angels love.

Mr. Gerbrich came to seek information respecting some points in bee culture, and Mr. Levering and I tried to give the information sought. The gentleman was something of an itinerant peddler through the scattered towns of California and Oregon; and after obtaining this, his first honey crop, he proposed to take honey with his other articles in trade, and in this way work up a home trade. He afterward told me that, had he depended upon honey alone, he could not have paid expenses. Honey, by most people, is considered a luxury, and only a small quantity is purchased at a time. He could, however, dispose of it to good advantage in connection with his other goods.

In one of the side canyons I found bee-keeper N. J. Mallow. He is the owner of about 100 colonies of bees in four apiaries. These are, of course, mere nucleus apiaries, which he hopes to increase to a hundred in each. He makes his calculations, however, with the proviso that we always used back east—I will do thus and so if they winter well. A burnt child dreads the fire, and Mr. M. has has had the experience of losing 89 colonies out of 90, and that proves that the wintering in Northern California is attended with disaster.

I have before stated that there is much honey-dew in this portion of California, and it seems to be more plentiful the further we penetrate into the mountains. Mr. Mallow gave me the information that the honey-dew found on the oak in the spring was whiter in quality than alfalfa honey, and of good quality, and will not granulate, even if kept two years. The honey-dew that is gathered in the fall is not so good, and I am inclined to think that his great loss of bees previously mentioned, was owing to too much of this kind of honey. The honey-dew in these mountain regions is so plentiful sometimes that hunters, in going through a thicket, have their clothing thoroughly smeared and sticky from it; and it seems that bees work upon it with avidity when they are located far enough up the canyons to find it. Mr. Mallow uses the L. hive and system of management, and his honey-yields range all the way from 80 to 200 lbs. per colony of extracted honey. He sells all of his honey in the home market, delivering it to all towns and mining-camps within a radius of 25 miles. He is in accord with Mr. Doolittle about painting hives, and thinks his bees winter better where they are unpainted. The bees that gather honey in these apiaries are of the black race, and Mr. M. thinks they are good enough.

N. J. MALLOW AND SON.

Mr. M. has a fine ranch, and is thoroughly anchored to it with a family of wife and eight children. Huber is the name of the youngest, and I have not the least doubt that he will follow in the footsteps of his worthy father. I herewith present a picture of father and son.

H. S. M., N. Y.—The best way to make candy for bees is to mix sugar and honey into a stiff dough. Allow it to stand in a warm room for a day or so, and then mix in more sugar. These lumps of dough can be put on top of the frames for winter.

ANSWERS TO SEASONABLE QUESTIONS BY G. M. DOOLITTLE.

FROM EARLY SPRING TO THE HONEY-FLOW.

Question.—As it will soon be time to get the bees out of the cellar and commence active operations looking toward the honey-harvest, will you please tell us in your department in GLEANINGS what should be done from early spring to the first flow of nectar which gives a surplus? This flow is usually from white clover in this section.

Answer.—As our questioner leads us to infer that he winters his bees in the cellar I will speak of setting from the cellar first. I follow a different plan in setting the bees out from what most apiarists do; and after trying all the plans for years which have been given I like this much better than any other:

Beginning with the first day in which bees which are outdoors gather any pollen, I commence at about 3 P. M. (if the mercury stands as high as 55 to 60° in the shade) to set out part of them, say from ten to fifteen colonies as the case may be, scattering them about the yard so that they will be as far apart as possible, and yet be within the limit of what space I wish the yard to occupy. This is done so that I need keep no track of where they formerly stood, and yet not have any mixing of bees, as would be the case were all set out at once or near together. Were all set out together, as most apiarists do this work, there will be more or less of colonies mixing up, unless each colony is set on the same stand they occupied the fall previous. To so set them requires a great deal of extra work, numbering hives, stands, etc., which is quite an inconvenience, and even then does not prevent some colonies getting far more than their share of bees.

To set out, I place my spring wheelbarrow and lighted smoker near the door of the bee-cellar, when I carefully open the door, quickly step in, and take the hive nearest the door, placing it on the wheelbarrow, when the door is immediately shut again. The bees in the hive now begin to realize that their long winter nap is at an end, and, if I took no precautions, they would be out of the hive and in the air, losing their home and stinging fearfully. To avoid this I now blow four or five puffs of smoke in at the entrance to keep them quiet, when the entrance is closed by laying a square stick in front of it, when the hive is wheeled and placed on the stand it is to occupy. The stick is now taken from the entrance, and the bees allowed to fly. This they will do as leisurely as they would had they not been disturbed at all, while, had not the smoke been given, they would have all piled out of the hive with a rush. This going out slowly is a great advantage to them in marking their location and repelling robbers. The next pleasant day more are set out in the same way, and at about the same time, scattering them about as before, but paying no attention as to how near they come to those already out, for they are liable to mix only with those set out at the same time. I sometimes set out about the same number in the morning of a pleasant day, beginning to carry out as soon as the mercury reaches 45°, because, in this case, the bees must get through their thickest flight before those already out become very active, or else there is danger from robbing. In fact, those set out in the morning are much more liable to be robbed at best, for at this season of the year, on the days of the first flights of bees, they are always seeking for some weak colony to rob, because there is no nectar coming in from the fields; and bees having their first flight in the spring are not in condition to defend themselves from robbers, and for this reason I set out the most of them in the afternoon. Again, by this plan all the fatigue attending this work is overcome, as well as the mixing, keeping a record of where each hive stood, robbing, etc. As soon as set out, the next work is to see that all have plenty of stores; and if in a tight-bottomed hive, clean off the bottom-boards. As I use loose bottom-boards a clean bottom-board is placed on the wheelbarrow to set the hive on, so I do not have to disturb the bees afterward on this account. To find out about the honey or stores, the first cool morning go to the hive, take off the cover, and carefully raise the quilt or honey-board, and look for sealed honey along the top-bars of the frames. If plenty is seen they are all right till they are to be carefully looked after three weeks later. If little or none is seen, they must be fed; for if we are to reap good results from our bees they must have plenty of stores at this time of the year to encourage brood-rearing.

For feed at this time I prefer combs of sealed honey set in next the cluster, to any thing else. If none such can be had, we must feed sugar syrup, or liquid honey if we have it; but the feeding of liquid sweets thus early in the season entices many bees out to perish in unfavorable weather, and tends to promote robbing beyond any thing else. Three weeks later the hives are to be opened generally for the first time (unless we have some good cause for opening them before), the goodness of the queen looked after, the amount of stores on hand, and the brood nest reversed, by placing the two center frames of brood on the outside and the outside ones in the center. By so doing a gain is made, as all the older brood is in the central combs, which are generally filled nearly to the outside of the frames, while only small patches of eggs and larvæ are in the outer ones. This reversion causes the now inside frames to be filled entirely with brood in the shortest space of time, while there is little danger of chilling the brood in this way. At this time we should see to it that each colony has plenty of stores to last two or more weeks, for at no time should the bees feel that they must economize in honey, if brood-rearing is to go on rapidly, which it now must if we are to secure a good harvest of white honey.

In about ten days a frame of empty comb is to be inserted in the center of the brood-nest, or, better still, a frame of honey which has previously had the sealing to the cells broken. By removing this honey the bees are greatly stimulated, and brood-rearing accelerated. In eight or ten days more the brood-nest is again reversed, when, if all has worked well, there will be brood in all but the two outside combs, and generally some in these; but if not, there soon will be, owing to the full sheets of brood coming next to them. If honey is now coming in, the surplus arrangement is to be put on in a day or two; and it is better to put it on in a week or so, in any event. This, in brief, is my plan of management from the time of the setting of the bees out of the cellar till the honey-flow from clover. Now, if all of this is done properly and you have allowed your bees to care for themselves heretofore, you may want to get a "double gait" on yourself, as the darky wanted to catch the mule. A physician and his friend were standing on the street corner of a Virginia town when their attention was amusingly called toward an old darky belaboring the flanks of a mule in a vain persuasion to make him move on. At last the doctor was appealed to. "Say, boss, I'll give yo' five dollahs ef yo'll make dis hyer mule go."

With a sly wink, the physician opened his case and took out his hypodermic syringe; filled the needle with an acid, and sent it into the hindquarters of the mule. The effect was magical. With a wild plunge the mule went tearing down the street, with the darky after him, the bystanders roaring with laughter. A short time afterward the darky, dust-covered, approached again.

"Say, boss, how much was de wuff of dat stuff yo' done squht in dat mule?"

"Oh!" said the doctor, "about ten cents."

Down went the darky's hands in his jean pockets. He fished out two dimes.

"Hyeh, boss, am twenty cents. I wish yo'd squht twice as much of dat stuff into me, 'case I'se bound to catch dat mule."

HEADS OF GRAIN FROM DIFFERENT FIELDS

SNOW OVER ENTRANCES; CLIPPING.

1. How long may snow cover the hive-entrance without injury to the bees?

2. What advantage is obtained by clipping a queen? Could not the attendant, who must be present to assist the flightless queen, just as easily handle the swarm and queen settled naturally together? A. W. CARSON.

Joplin, Mo.

[I do not know how long the entrance may be covered with snow. I know only this, that in our locality we never think of uncovering the entrances, and we have had the hives covered almost entirely for six weeks at a time. I should not be afraid to leave hives under the snow all winter. An occasional colony may be lost by snow melting and running into the entrance and freezing, and that would be all. A colony in a double-walled hive, well packed, hive completely covered with snow, has all the ideal conditions for successful wintering outdoors.

2. Yes, the same attendant who takes care of the swarm can also look after the queen; but when a queen's wing is clipped it saves from a half to two-thirds of the labor of hiving swarms. When she is allowed to have her wings, and go with the bees, several things are liable to happen: First, bees, queen, and all absconding; second, the swarm clustering on some high limb; third, swarm with a queen circling about for a half or a whole hour, giving their owner a wild-goose chase.

The great advantage in having a clipped queen is this: A swarm goes forth, but the queen goes no further than a foot or two from the entrance. As soon as the bees discover they have no mother they will return to find her, which, if caged, is placed in front of another hive now on the old stand. The super that was on the old hive should be placed on the new one. The bees and queen enter the hive and begin work. There is no climbing, no chasing with spray-pump, and the work is performed easily and comfortably without excitement or worry.—Ed.]

A PLEA FOR SEPARATORS TO REACH TO THE TOPS OF THE SECTIONS.

Mr. Editor:—From a Straw on page 870 it appears that Mr. Gathright, Dr. Miller, and yourself agree pretty well that separators should come ¼ inch below the tops of sections; and the editor adds, "Our fences for 1899 will be narrow enough to allow this space above and below." Additional weight is given to that Straw by the fact that the *American Bee Journal* reproduces it. Well, after all the weight and added weight given to that Straw, it appears to me that it should have a qualification go with it. By your permission, Mr. Editor, I will say that separators between sections having insets on the sections, or otherwise, of ⅙-inch only, may possibly work all right according to the arrangements in that Straw; but with those sections having ¼-inch inset the separators must come to the tops of the sections, or the [*] sections, as a rule, will be marred more or less with bulge or burr-comb, or both—that is, provided the bees are crowded sufficiently to secure well-filled and well-finished sections. But, what is a well-filled and well-finished section? There may be a world of difference of opinion on that question. My answer is, sections that are filled and capped against the wood nearly all the way around. Let's look at it for a short time. With one super placed upon another, both filled with sections having a ¼-inch inset, and separators ¼ inch below the tops of the sections, there will be spaces ½ inch x $\frac{9}{16}$ x 4 inches; or if the separators are ¼ inch above the bottoms of the sections there will be spaces $\frac{9}{16}$x¾x4 inches. Now, Mr. Editor, I want to say that, in almost all my experience, I have found that, when bees are crowded for room for stores, they will not fail to occupy such inviting spaces with comb and honey.

The troublesome experience I have had in that line has taught me a lesson that I am willing to impart to others at a much cheaper rate than it cost me.

Yes, I am aware that some few colonies will respect such arrangements; but they are the rare exceptions. Of course, such wide separators must have some sort of passageways through them. S. T. Pettit.

Belmont, Ont., Can., Dec. 20, 1898.

MORE ABOUT THE HYDE-SCHOLL SEPARATORS; REPLY TO CRITICISMS.

Mr. Root:—I believe that, in your criticisms of our separators, you overlooked some very important points. The main point is the greater free communication offered in the fence separator. It is claimed that this object is the one in view. If so you clearly see we have a greater amount of communication in our separators, also a better filling of the sections clear out to the wood; for where there is a cleat on the fence we have an opening in our separators. Thus you see it will not only give fuller sections but a larger amount of honey per colony; therefore this will overcome your objection of greater cost, ten times over. Even granting that the extra cost was 5 cts. per super, we claim that colonies where our separators are used will produce at least one-fourth more honey—at least, that is our experience. If so, then does not the extra cost sink into insignificance in comparison with the larger yield? Then, too, I think your criticisms of their frailty a little too strong. I can't help believing they are no worse to break up, etc., than the fence, because they come in contact only with the sections at the corners; but to those who wish something stronger I will say that The A. I. Root Co. will make these separators of tin also, as well as of wood; and when you get a tin separator you have one for years. Don't think, friends, that there is a patent on these separators. They are free to all. H. H. Hyde.

Hutto, Tex., Dec. 30, 1898.

WOOD-ZINC VS. PLAIN SHEET-ZINC HONEY-BOARDS.

By the way, that man Martin you have rambling over the country, telling big yarns, speaking of queen-excluding honey-boards, says in Nov. 15th Gleanings, "I make the wood-zinc board, for they are infinitely better" [my! what a term — *infinitely* better!] "and more durable than the plain zinc, for they do not get out of shape and into innumerable twists." Why isn't the man a little more modest, and say, "To *me* they seem much superior to the plain zinc boards"? I have been using them ten years; have 700 of them, and, after trying the wood-zinc, I decide that I would not take them as a gift, and be compelled to use them.

Yes, "get into innumerable twists" like a rubber hose-pipe, so you can never get them straight. I never think of it as a trouble. I simply take hold of the end or corner of the zinc as I would a sheet of paper or a duck cloth on top of my hive, and peel it off—never a snap to jar the bees, nor care to prevent breaking the wooden frame. If curved, turn the convex side up, and the super set on straightens it out. My ten-year-old zincs are as good as my two-year-old ones.

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[*] The term "section" properly applies to both the wood and the honey. The former is a section of wood and the latter is a section of honey

Newhall, Cal. R. WILKIN.

UNFAIR COMPARISONS; HONEY IN SQUARE VS. TALL SECTIONS.

Figs. 10 and 11, on page 920 of GLEANINGS, are not honest diagraphical or pictorial comparisons of the objects represented. Looking at page 920, no doubt every person would unhesitatingly pronounce in favor of Fig. 11; but the appearance is deceptive. The Danzenbaker sections are given in your catalog as 4x5 inches, and you give four of them the whole width of the page, while four of the 4¼-inch sections have a margin on either side.

Then, speaking of these latter, you say that you had to hunt long and hard for them. Fig. 11 you do not mention there; they seem to be there to speak for themselves.

I have had slight opportunity to test the plain sections, on account of a poor honey season; but from my limited observation I fail to see the great promise of superiority. Still, time may decide that point.

H. O. VASSMER.

Excelsior Springs, Mo., Dec. 22.

[It may appear to you, friend V., that I meant to compare the two lots of honey, placing those in the old style at a disadvantage. That was not my intention. The two engravings were made months apart, and I had no thought, originally, of placing the two side by side. I would not have done so when I did had I not had a little extra room, and used it by inserting the cut shown in Fig. 11, for you will see no reference to it in the reading-matter on the same page or the next one. Of course, it is not fair to compare a 4 x 5 section with a 4¼, disparaging either; and if you will read carefully again what I said you will see that I did not do so. In referring to the honey in the old-style section I did say this: That it would "compare very favorably with any I have ever seen in plain sections"— a general statement; and on page 932, in speaking of the two lots of honey on the same page, I said that it (honey in old-style sections) "looks as nice as the other." So far as the actual specimens there shown are concerned, I plainly stated that one was as good as the other.

But perhaps you object to my statement (p. 932) wherein I said that Fig. 10 was better than the average of fancy in the old styles, and that Fig. 11 was very close to the common run of fancy in plain sections. If this is what you object to, then it is simply a matter of opinion or taste. I gave my opinion, right or wrong.

With regard to your observations on plain sections you admit that your experience is limited. If you bought honey in ton lots, as we do, I think you would have reason to believe that plain-section honey is prettier-looking than the other.

Of course, it is to be assumed that some of us who are enthusiastic in regard to these new things may paint them in too bright colors; and it is assumed, also, that those who are more conservative, and inclined to cling to the old, will *not* be apt to give the new goods all the credit rightly their due.—ED.]

A PLEA FOR WIDE FRAMES AS AGAINST SUPERS.

I have been a well-pleased reader of your paper for some years, and especially A. I. R.'s writings. For more than a year I have wanted to ask why the old-style wide frames for sections were not the best of any thing for sections. I have used both them and Simplicity T-tin supers, and, to my notion, the wide frames are far ahead of the supers. I can get more and better filled and cleaner sections with them. If my bees winter well I shall want two or three hundred of them for another year (I have now about 450 of them), unless I find something better, which I very much doubt. Of course I want the best, and my opportunity for learning it is confined almost to the pages of GLEANINGS. It seems to me I must be away behind the times, as I notice they are hardly ever mentioned in your papers; and when they are, it is with such a hang-dog, disgusted, out-of-date expression that I always want to ask why. I can not find them mentioned in your price list either.

Now, Mr. Editor, an answer to the above in your paper, or an article on the subject, would be very useful to me and, I think, of much value to a great many of your readers.

ALFRED ATHERTON.

Oramel, N. Y., Dec. 12, 1898.

[I am surprised that you prefer wide frames to T supers. The former have been almost entirely discarded, and why? In the first place (for I am talking about double-tier eight-section wide frames) the sections are in two tiers. If you put a hive or hive-body on top, containing wide frames, you must either give them a whole set of 48 sections, two tiers, or else put in a few wide frames and fill up the space with dummies. Objection No. 1, then, is that, with wide frames, one must give too much room at a time. Objection 2. They are not as easily filled or emptied as the T super. The last named can be emptied *en masse*. Objection 3. Wide frames are difficult to get out of hive-bodies. When they are once glued together in the hive it is sometimes a big job to get them out, to say nothing about removing the sections afterward. Objection 4. Wide frames are not as easily cleared of bees as the T supers, and, moreover, they require the use of tin separators. Wooden ones may be used, but not satisfactorily. The only advantage they have is that one, and perhaps two, may be put down in the brood-nest; but discolored honey is liable to be the result; and then, as a rule, a colony should have at least all the space it can have in an eight-frame hive for breeding purposes.

We ourselves prefer a single tier topless wide frame or section-holder arrangement to a T super.—ED.]

THICKNESS OF TOP-BARS FOR SHALLOW FRAMES.

How is foundation fastened to the shallow extracting-frames, as they have no comb-guides? Would it not be better to make their top-bars the same as for the full depth?

JOHN B. ADDISON.

Washougal, Wash., Dec. 17.

[We advise every one to wire all his frames. Shallow extracting-frames can be wired horizontally or perpendicularly, according to the taste of the bee-keeper; but horizontal wiring is simpler and just as good. When frames are wired, the matter of fastening foundation is a simple one, providing one horizontal wire is put near the top-bar. If for any reason one does not care to wire, he can use the Hambaugh roller, especially designed for fastening foundation to top-bars flat on the under side.

Why do we not make top-bars for shallow frames thick? For the reason that the frames are already shallow, and the thickness of the top-bar consumes too much of the relative space for the comb in the frame. In shallow frames the top-bars do not need to be as thick as with deep ones, for the reason there is less load for the bar to support, and hence little or no sagging. One object of a thick top-bar is to prevent sagging. In order to keep down burr-combs it is absolutely necessary to preserve bee-spaces. The shallow bar with the deep frame will sag, and consequently the bee-space will be enlarged just enough to encourage the building of burr-combs.—ED.]

SIZE AND CONSTRUCTION OF HIVES LARGELY A MATTER OF LOCALITY.

Once I thought I was satisfied that I had the best hive with a hanging frame, ten to a hive and eight to a hive. The frames were 11½x15, or a square foot of comb. I used both sizes of these hives for 30 years. I like the ten-frame best, but seldom use more than eight combs in the time of gathering box honey. But for the past few years I have been using 100 or more hives with Hoffman frames, same size, only 2 inches lower, with equally good results. But they want more time and attention. I am also using 100 or more of the Quinby-Hetherington standing-frame hives, and I must say I do not wonder that so many differ in the size and kind of hive they use, for it depends on locality. It depends on whether we want extracted or box honey, or whether we want one all-purpose hive; and it depends very much on the amount of work and skillful attention we want to give our bees. What kind of hive is best for us to use? I should be glad to have uniform hives, but I fear we shall not get to this; but we should have uniform sections and shipping-cases for our honey. It would be to the interest of all. A hive is a good deal like a wagon. I once thought I wanted a spring wagon for all purposes to carry about 1500 lbs. I have found I was mistaken. I now use a wagon that will carry 1000 lbs.; and the next wagon will carry 2000 lbs. or more. The 1500-lb. wagon was either too small or too large, and so it is with a hive. I feel that, to carry out all of my plans, I must have two sizes of brood-combs; but want the hives all to take the same kind of surplus clamps for box honey. As I use two clamps to cover a hive, I prefer a hive so nearly square that it can be used either way, or that only one half of a hive may be used for brood, and one clamp cover them when desired.

I can appreciate Dadant's writing about his *big hive*, and can indorse the most he says. *But* I *don't like* his *large frames*. I used them in the first frame hive I ever used. They winter well, and give strong swarms, etc.; but to handle the frames all day it wants a strong man; and they are bad combs to break down while moving over our rough roads on a wagon. I run my bees from a wagon or a sleigh down a plank shute into a cellar. A man in the cellar takes care of them there while the team and man go to the yard after another load. I want hives and combs secure—no bees getting out until all are in the cellar.

Middleburgh, N. Y. N. D. WEST.

THE ROOT CO. AND THEIR NEW FIXINGS.

I see some one has called your attention to the thickness of the one-piece section. I should like it if sections were made ⅛ inch thick at least, or if we could get them so to order. I have wondered if the four-piece section is any thicker than the one-piece ones.

In regard to the fence, I should like to have the edges beveled off the posts; but the bevel should be very slight, as the posts are very nearly right as they are. I think the slats should be all of the same thickness, say ⅜ in. I do not think the space at top of fence should be more than a good bee-space—that is, not quite ¼ inch—say ⅙. I think that the very best fence could be made of three slats; but of course you could not work the material in quite so well. I saw cuts of the Hyde Scholl fences in the *Progressive*. I think they are a toy affair, fit only for men who want to keep bees for pleasure and not for profit. I am well pleased with the new fence, and would not go back to the old separators for any money.

A great deal has been said against your and every other supply-house for putting new fixings upon the market; and some of the great lights in bee-keeping have stood in the market-place to warn us youngsters not to purchase any new hives, fences, plain sections, etc.; or if we felt that we must buy, to do so sparingly—just as if the supply-dealers were crazy, and were trying to beat us out of our money. I sometimes wonder whose money we are using, and if some of us are not old enough to buy without all this guardianship. I for one am proud of The A. I. Root Co. for looking up new fixings in the bee-business; and I hope even the most conservative of the old bee-keepers will let us spend our money and try the new fixings. I am not afraid of new machines running men out of employment, nor am I afraid that I can get up honey in too attractive a shape for the market; and though the Root Co. make a few mistakes, I know they mean well to us all.

Cuba, Kan., Dec. 12. WM. H. EAGERTY.

SWEET CLOVER ; HOW TO GET RID OF IT, AND HOW TO TEACH COWS TO EAT IT.

Friend Root:—Mr. Lewis A. Sawyer seems to be at a loss to know what to do with his sweet clover. I sowed some around fence-corners and little odd places about my farm, not knowing it would grow so high. It grew to about 8 or 9 feet, right where it was in the way, so I cut it down, just as it was coming into bloom, and that was the last of it. It never troubled me any more.

I say yes, the cows can be taught to eat it. I just sprinkle a little salt water on it and they soon learn to eat it without the salt. My cows like it very well. EDW. SMITH.

Carpenter, Ill., Dec. 8.

SWEET CLOVER, AGAIN.

What kind of cattle does Mr. Sawyer have, anyhow? If I had a cow that would not eat sweet clover after I had kept her six months I would certainly dispose of her. I have sweet clover growing in my pasture, but I have as yet to see it bloom. The cattle keep it eaten down all the time. JAS. PRATT.

Cumminsville, Neb., Dec. 31.

BEGINNERS' QUESTION BOX BY E. R. ROOT

A. F. H., Me.—Our bees are taxed like other property. As a rule, bees are taxable in nearly all the States of the Union.

J. C., Va.—If you will keep hybrids or Italians you will have little or no trouble with the moth-worms. Empty combs taken off in summer, and stored in hives, will usually be safe enough from the depredation of the wax-moth —especially so if the ordinary spider can get access to the combs. Combs previously subjected to freezing and shut in a tight box or in a hive, bee and moth tight, will be safe for any length of time.

G. W. M., Ohio.—Tarred roofing paper will in no way be offensive to the bees, especially when used as a lining to the building you speak of ; but if you put the bees in an up-ground building it should be frost-proof. All things considered, if bees are to be wintered indoors it is better to put them in a cellar where the temperature can be kept somewhere about 45. Wintering in up-ground buildings is not as successfully practiced as in buildings partly or wholly under ground.

J. L., Tasmania.—I note what you say in the matter of foul brood. In regard to p. 587 you got a wrong impression, probably because the language is not very explicit. I did not mean to convey the impression that foul brood would be sure to revisit an apiary *after* hives have been scalded and bees treated. What I did mean to say was that the disease would surely return unless treatment and disinfectants were administered. I send you our foul-brood pamphlet, and from this it appears that it may not be necessary to boil hives. This is probable ; but some authorities think that hives and utensils should be disinfected also. However, if you follow the treatment in the pamphlet you will probably not have very much trouble from the disease reappearing in your yards.

H. C. A., Wis.—Your method of using a large winter case, to accommodate ten or a dozen hives, is used by some ; but while first cost of this method of packing may be cheaper it means a good deal of labor. The majority of bee-keepers prefer, if they winter outdoors, regular chaff hives, because they are always ready for winter and are cooler in summer. It is not necessary to use shade-boards or shade-trees with double-wall hives, and some prefer them just for the protection they afford in summer. In regard to feeders, we have for years sold butter-dishes or trays just for this very purpose. One does not need to purchase the more expensive Miller or Boardman feeder, each of which has special features peculiar to itself. Both of them save labor, and with either of them the feeding can be done, usually, at one opening of the hive. As to the Hill device, corncobs or any thing of that sort may be used instead, but they are not as convenient, nor quite so good.

F. A. K., Wis.—I note that you say your bees are dying in your bee-cellar at the rate of three quarts per week. Considering the fact that you have 38 colonies in the cellar this may not necessarily be bad ; and yet at the beginning or at least the middle of the winter this is a rather heavier loss than there should be under favorable conditions. One who is used to wintering outdoors, and then winters inside, is often surprised at the number of dead bees there will be found on a cellar bottom in a few weeks' time, and he is likely to imagine that all his bees will die thus before the spring, when the facts are, even under the best conditions, that old bees are pretty sure to come out and die on the cellar bottom, and there may be an accumulation of an inch or so all over the floor, the number depending, of course, upon the number of colonies in the cellar. The loss in this way should be light, comparatively, during the early part of the winter, and increase as the winter advances. I suspect, then, that your loss is greater than it should be. Your loss may be occasioned by the fact that the cellar is not absolutely dark ; second, that the hives contain stores of inferior quality ; third, an undue amount of dampness ; fourth, temperature (38°) is low, if any thing—45 is better. The nearer you can keep it at that point the better will be the results. If a cellar is dark, ordinarily dry, and stores are of good quality, then I should attribute your loss to the low temperature. To bring it higher I would bank the cellar up more or put more colonies in. Fifth, there should be a slight amount of ventilation. This may be secured by means of a stove or by opening and closing doors at night when not too cold outside.

ANSWERS BY DR. MILLER.

A list of questions has been sent me by a correspondent, J. W. C. G., Illinois, which I will here answer in order; and, for the sake of saving space, I will not repeat the questions.

1. My opinion of the statement of W. W. Somerford, that the ten-frame Dovetailed is the best hive in the world, is that it is all right for some cases, but not for all. For some a larger hive is needed. Two stories of eight frames each may be better, but require more engineering. For some a hive with larger frames may be better. For one who pays almost no attention to his bees the year round, the ten-frame is better than the eight-frame. And something larger may be still better. But I don't set a very high estimate on my opinion, and it's liable to change at any time.

2. I think any one who knows how to use T supers properly, and who hasn't some special facility in handling section-holders that I never learned, will decidedly prefer T supers.

3. I use on my supers the regular hive-cover that I use on the hive when no super is on.

4. On my old hives I use Heddon slat honey-board under supers. On my newer hives, with thick and wide top-bars, I use no honey-board unless for some special purpose I want to bar the passage of the queen, in which case I use a wood-zinc queen-excluder. But it isn't needed to keep the queen from entering the supers.

5. I put full sheets of foundation in brood-frames and in sections. In brood-frames that means the foundation touches the wood on all sides, being slid into a saw-kerf in the top-bar, and between the two split halves of the bottom-bar, having little sticks of wood instead of wires. The sticks are $\frac{1}{16}$ inch square, running perpendicularly, first boiled in beeswax, and pressed into the foundation while hot. A ⅝-inch bottom starter is used in sections.

6. I use eight-frame hives, most of them of old pattern, having frames varying from the regular Langstroth just enough to be a nuisance. I'm working into eight-frame Dovetails just as fast as I can.

7. I run for comb honey, using a T super 12⅛ inches wide inside, and long enough for four sections. That makes it take easily 24 sections of popular size.

8. I use separators always. Some do without them; but the character of the honey-flow, or else ignorance on my part, makes separators a necessity with me.

9. My T tins are loose.

10. I winter in cellar. My experiments in wintering on summer stands have been rather expensive; but it is quite possible that, if I knew enough, that might be the better way.

11. All my queens are clipped as soon as it is convenient for me to clip them after they begin laying.

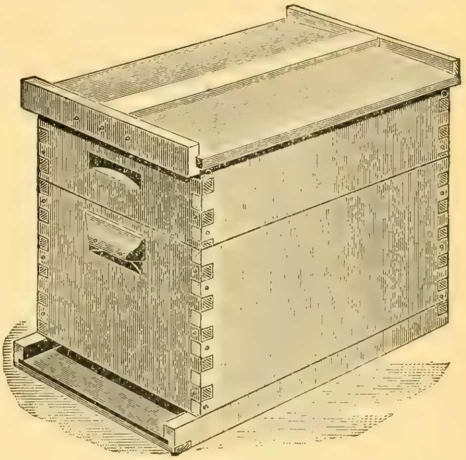
12 If I hived a natural swarm I should put it on the old stand, moving the old, setting the mother colony beside it, and taking the mother colony to a new place in about a week.

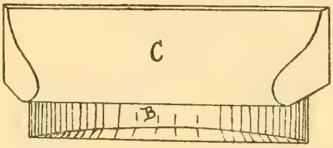
13. Yes, I am fairly entitled to the title "M. D.," having worked hard for one that I received from the University of Michigan a good many years ago But what between advancement made in the science of medicine as well as in apiculture, and forgetting for want of practice some of the old-fashioned things I did learn, I wouldn't urge your sending for me in case of dangerous illness if you have a reliable family physician within a hundred miles. DR. C. C. MILLER.

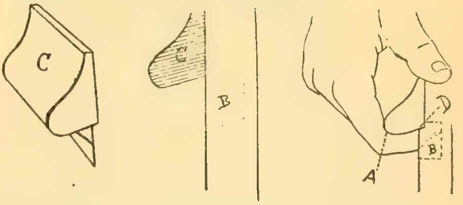
TRADE NOTES
BY E. R. ROOT.

HAND-HOLE CLEATS FOR HIVES.

A short time ago I promised to show you something in the line of cleats in combination with a hand-hole to lift hives. We have finally got them perfected—or at least so they suit us, and now offer them in all our Dovetailed-hive combinations. They are nothing more nor less than short pieces of molding beveled at each end, and nailed so as to come directly over the top edges of the hand-holes, as shown above. The following illustrations show a little more of the detail.







Perhaps the question may be asked *why* the hand-hole cleat alone would not be sufficient. It is much more convenient than the hand-hole alone; and the two in combination are far better than either alone. When one tries to lift a fifty-pound hive by hand-holes, his fingers can get a grip only *at the mere tips*, *on a sharp edge*, as at D Such a hold is a severe strain on, if not painful to, the ends of the fingers; and one does not feel that he cares to lift very many hives in this way; but if he can get the heft of the weight on the *middle joints* of the fingers, as at A, and on a rounding edge, he can lift all that his back will stand. With an ordinary cleat one has to lift the hive by the first joint of the fingers, and it is only a little better than the hand-hole; but when the hive is recessed back of the cleat a little he has an opportunity to bring the heft of the load where he can handle it to advantage—at the point A.

Hand-hole cleats will *not* be supplied for supers, as these can usually be handled by the holes alone with no great inconvenience.

We sell these cleats separately when called for, at 75 cts. per 100, or $6.00 per 1000. They can be attached to hives already in use; and where they are to be moved to out-yards, or handled very much, these cleats are a great convenience, and worth many times their cost.

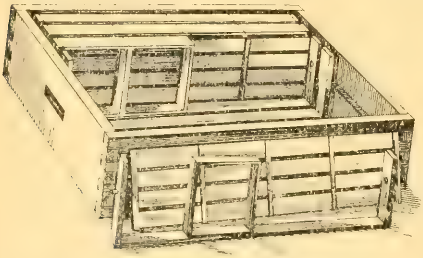
Dr. Miller wants his cleats to go *clear across* the hive. If there are those who prefer to have them so, we can supply their hives with such, but the price (of the cleats) will be twice as much as for the short ones, and will be supplied only from the factory, as our dealers will keep only regular goods.

We have a lot of other little comforts in our 1899 hive, and in our next we will tell something of these also. Our new spring compression for supers excites the admiration of all.

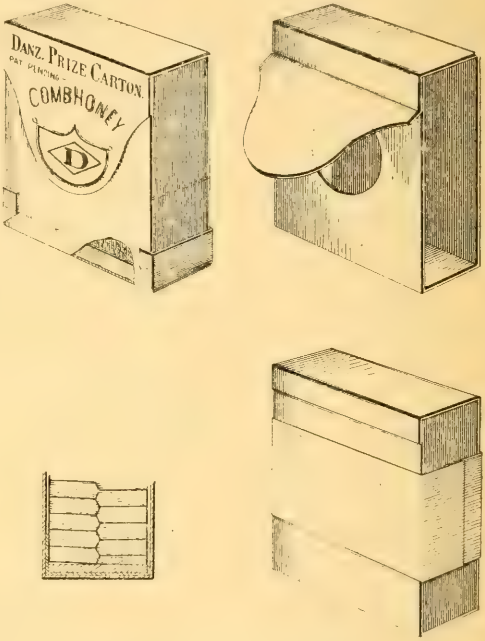
THE DANZENBAKER SUPER.

BY F. DANZENBAKER.

The Danzenbaker super shown here is furnished with hanging section-holders having end and bottom bars the same width as the sections, with free bee-ways their entire length, forming a perfect divisible honey-board that holds the sections firmly together true and square, and protects their under side from propolis or burr-combs. Each holder is provided with headed iron pins driven through the end-bars from the inner side, securing uniformity in length of bearing on the solid supporting cleats, maintaining a correct bee-space between stories. The fences are supported in like manner, and provide an open beeway at both top and bottom between each two rows of sections (which is secured by patents issued and pending). One of these fences is used as the follower back of the sections, held securely in place by a curved wire spring set in the side of the super.



The plain sections are seen in position on the holders. The thickness of the sections and fence cleats together affords the same honey-space as is in the 7-to-the-foot sections with plain separators; and when filled with honey they pack closely in the shipping-cases, saving from 10 to 20 per cent in cost and weight of cases and crates in shipping the honey to market.


DANZ. PRIZE CARTON.
PAT PENDING.
COMB HONEY
D

DANZENBAKER PRIZE CARTON.

Progressive comb-honey producers desirous of promoting sales by doing things just right are putting their best sections into neat attractive cartons, ready to hand to the customer without wrapping, yet secure to carry safely in the pocket, satchel, or market-basket, as other articles are put up for domestic use. These cartons can be made artistic if desired, giving the name of the producer or seller, and kind of honey, while the quality is shown by raising the cover over the opening without removing the sections.

They are made ready to use without folding, ready to open only, and put in the section, which is kept secure in place by a string or rubber band.

They are made to match the sections and fit in the same shipping-cases when filled with honey, and will protect the cappings of all, as there is no space to tilt over in case any should be jarred loose by rough handling in shipping.

They will pay for themselves, insuring prompt sales and better prices.

Washington, D. C.

EDITORIAL
BY E. R. ROOT

EIGHT extra pages.

NEARLY every one of our journals has some special features. One, for instance, will be conspicuous for illustrations; another for some special article; another for the discussion of some particular subject, and so on. This number has some of the best articles we have ever published, from men of intelligence and large experience — some of the brightest and best bee-keepers we have.

IT is not to be presumed that *every* thing published in GLEANINGS, or in any other journal, in fact, will be interesting to every reader alike. Probably the majority of subscribers glance over the pages, and read that in which they are particularly interested, and skip the rest. The veterans, for instance, probably do not care for instructions to beginners, and the latter have no interest in the discussion where the experts disagree. As it is, GLEANINGS tries to give a general variety—indeed, to cover the whole range of apicultural matter. If there is any subject one or more wish to have brought up, be free to ask for it. If it is of general interest I'll bring it up.

THE GOVERNMENT AND APIS DORSATA.

ONE of our subscribers, Mr. Bion Walbridge, of Stony Fork, Pa., wrote to his Representative for reliable information in reference to the government importing *Apis dorsata* from the Philippines, as they are so currently talked of in the papers. Well, it seems that this request found its way finally to Entomologist Howard, who replies :

> *Mr. Bion Walbridge* :—Your request of December 12, through the Hon. Horace B Packer, for bees from the Philippine Islands, has been referred by the Honorable Secretary of Agriculture to this Division for reply. The newspaper report which you mention was unauthorized. The Department has not, as yet, undertaken the importation of bees from the Philippines. Should they be obtained, however, they would first be carefully tested before any general distribution would be decided upon. If then the latter course should be deemed advisable due notice would be given to those interested, and your application would be favorably considered by the Department.
>
> L. O. HOWARD.
> *Entomologist.*

IMPROVEMENTS IN OUR EXCHANGES.

ABOUT Christmas time, or following New Year's day, we usually see quite a brightening in all the periodicals, and bee-journals are no exception. Prominent among those for 1899 that show new blood and new life are the *American Bee Journal* and the *American Bee-keeper*—both representatives of the American idea, viz., progress and push. The Old Reliable comes out with a new title-page, new body type (just like ours, by way of compliment), and one can not fail to note an added freshness and vigor throughout the whole journal. It is the oldest of all of the bee-papers on this side of the Atlantic. It is a weekly, and always on time — the only one, I believe, that can really claim this distinction.

Some of what I have said relative to the *American Bee Journal* will apply equally well to the *American Bee-keeper*. It is edited by Mr. Harry E. Hill, a practical bee-keeper whose experience, probably, has been more varied than that of any other apicultural editor in our ranks. He is bound to make his paper jump forward into prominence. I have often admired his clean-cut practical editorials.

ARE SUNSHINE AND AIR FOES TO GERM LIFE?

I AM asked by L. G., in a French journal entitled *Le Rucher Belge*, whether exposure to air and sun will kill spores of foul brood. I do not know from experience, and am hardly scientist enough to follow out an investigation. But there are reputable scientists who say that such exposure does kill the germs; but if it requires two hours and a half *boiling* to do it, how many years of air and sunshine will it take to do the same work? I must confess that I myself would not care to place too much reliance on the simple agencies of these two elements. Of course, I am aware of the fact that the rays of old Sol and the stuff we breathe are foes to most forms of germ life; that is the reason why it is so necessary to let sunshine and fresh air into sleeping-rooms, and why rooms kept dark to prevent nice carpets from fading, or shut up tight to keep out the dust and noise from the street, are not apt to be healthy places for persons to live in or to sleep in for any great length of time.

DOOLITTLE ON BURR-COMBS; CHANGING FRONT.

IN our new department, ' Pickings from Our Neighbors' Fields," it will be noticed that G. M. Doolittle is a champion of wide and thick top-bars, for the reason that they do away almost entirely with the burr-comb nuisance, for he says, " In many of my hives not a burr-comb appears from one season's end to another." I was a little surprised when I read this, for, if I remember rightly, Mr. Doolittle was once in favor of these same burr-combs, and that he wanted them for " ladders " — that is, for a handy way of entering the supers. The reason I remember it is that, when I began to champion these wide and thick top-bars, he championed the burr-combs. Well, I am not going to say, "I told you so," but, as I said before, it shows one's candor — nay, even more, his progress — when he is willing to go back on old tenets and adopt ideas advanced by opponents.

" HONEY POPCORN CRISPS, FIVE CENTS."

WHEN I called on Mr W. A. Selser, the Philadelphia honey-man, he showed me some of the sights in and about the city, reference to which has already been made in these columns. On one of these excursions out of the city into the suburbs we stopped at one of the leading pleasure-resorts, the name of which has gone from me; but no matter. At this resort we visited a *honey*-popcorn stand where the proprietors make a specialty of honey popcorn for five cents a package.

We bought some of the crisps, and, sure enough, they had an unmistakable honey flavor; and as a delightful, toothsome confectionery they can't be excelled. That pure honey as a sweetener is used is evidenced by the fact that Mr. Selser furnishes the honey, and lots of it.

Elsewhere I show a snapshot that I took of the pavilion. Mr. Selser stands at the left, with his hand on the counter, on which are piled the crisps. That the place does a large business is shown by its general appearance of permanence, and the fact that there are two or three clerks there all the time. It has a modern cash-register; indeed, one of the clerks is just making out the change to hand back to Mr. Selser.

The crisps are, of course, made right in the building, and the enormous popper is shown at the right.

I suggested to Mr. Selser that it would pay him to sell these honey crisps; but he thought the demand would hardly be enough to warrant him in advertising them.

I do not know but it would almost pay us to catalog some of the foods prepared with honey; for instance, a good honey caramel, honey cakes, honey jumbles, honey popcorn crisps—all these and more might have a considerable demand. If the sale of them accomplished nothing more it would encourage the consumption of honey of darker grades by the baker and confectioner.

HONEY-LEAFLET NOT A SUCCESS AS A HONEY-SELLER.

A SHORT time ago I asked through these columns whether the honey-leaflets when freely distributed helped the sale of honey in the local markets. I have received quite a number of responses, and nearly all confess their surprise at the fact that the leaflets seem to have no effect one way or the other. One writer says people are so used to having circulars in the line of patent-medicine advertisements shoved under their noses and on their porches that they pay no attention to them; and, besides, some people do not like to have their premises littered up with such stuff.

There is just one correspondent out of the whole number who said he found these leaflets to be of material aid in disposing of his honey crop. But he usually hands one of the leaflets direct to a consumer, calling his attention to the interesting matter that he will find about honey and the honey recipes in the back part of it.

It occurs to me that the whole trouble is we have gotten the leaflets up in too cheap a form. Something a little more expensive, perhaps, printed on a fine grade of paper, bound in a tinted cover, and perhaps decorated in colors, with, say, some striking and interesting pictures showing the art of bee-keeping, and how honey is produced, might attract the attention of the consumer and cause him to read it through. But, of course, such a leaflet, or booklet, as it would have to be in that case, would be considerably more expensive; and the average bee-keeper could not afford to give away large numbers of them.

Now, then, dear reader, what are *your* views? Should the leaflet be more expensive, and distributed to only a few consumers? or perhaps, better still, left only with retailers and wholesalers? or is the leaflet, such as we have been sending out, all right? May be it would be impossible to print all the suggestions that come in, but I should be glad to get expressions, and will then formulate them into a general statement, as I have done this time.

OUR NEW DEPARTMENT.

OUR readers will notice a new department, entitled "Pickings from Our Neighbors' Fields," immediately following Stray Straws. This department is to be edited by my old friend and co-worker, "Stenog" as he will sign himself, but who is none other than W. P. Root, who is at this very moment taking down in pot-hooks some of my offhand sentences. Mr. Root's writings have before appeared in these colums in a series of articles reviewing some of the old literature on bees, running through most of the year 1893. Since that he has had but little to say himself in our columns, although you may be sure he has carefully scrutinized every word and every punctuation-mark that has appeared in this journal, and in some of the others. Mr. Root has a keen sense of the true and beautiful, the good and the useful, and particularly of the dry and the humorous. And in his "Pickings" he is to have free swing except that he is not to fling flings or sling mud. He is to thrash over the gleanings from our exchanges, and then re-dish them up properly seasoned and spiced. Well, I'll let him now speak for himself:

At the outset, I deem it but fair to myself to state that it is not with the feelings of a novice that I am attempting this semi monthly spread of a new table. For a good many years I have had exclusive control of one department in GLEANINGS, although it was not signed. No matter how crowded, the editor has never asked me to cut it down. From start to finish it has been all my own, even to setting the type. The grammar has never been called in question, either by Mr. Taylor or Mr. Thompson. I refer to the index—that indispensable adjunct to all good journals. But in taking charge of this one, the personal factor is necessarily larger. The design of it is well described just above; namely, to state in a very concise manner the conclusions of writers in other bee-journals, on some subjects.

A private letter leads me to state that if any of the readers of GLEANINGS wish to ask any questions relative to the mechanical part of writing for a journal I shall be glad to answer such; and even without such questions, probably a good many suggestions will be made at this end of the line relative to the proper preparation of copy for printers' use

I rather like to give advice well sugar-coated, as it is more apt to be taken in that form. The "traditions of the elders" rest very lightly on me, and hence I presume I shall have to state things in my own way instead of conforming to any cast-iron rules. But the value of this department will be tested by time, and not by any promises I can now make. It involves a good deal of reading in English, certainly, and will probably include a few heads of grain gathered in German, French, and Spanish fields, although Dr. Miller is now attending quite faithfully to that kind of work. STENOG.

OUR HOMES,

BY A. I. ROOT.

This poor man cried, and the Lord heard him, and saved him out of all his troubles.—PSALM 34 : 6.

Dear fellow-travelers, I want to talk a little about the grip this morning ; and if you have had it I think you will be interested in what I have to say. I told you in our last issue about getting a crick in my back, and catching cold. Well, by being careful, and staying indoors, I got over it in the course of two weeks, or thought I had ; but after I began to get around a little, something—at least it *seemed* as if something—took hold of me by the back of my neck and held on with quite a "grip." I tried to stay indoors, but peculiar circumstances rendered it necessary that I should go out just a little ; and then I began to have toothache, earache, and sore throat all at once. You know, without my telling you, whenever I am in trouble I begin to ask God for guidance; or, if you choose, I begin to inquire what God would have me do under certain circumstances. A recent writer of great power has expressed it, "What would Jesus do?" A traveling man who came quite a distance to see me on business remarked that he also had the grip. He said he had it a great deal of the time, but still he kept traveling, and attending to business. Said I:

"Why, how do you manage to travel and attend to business when you have the grip?"

"Oh! I keep driving it off with quinine."

"But quinine does not seem to answer with me. Other people find relief by taking quinine, and I often try it because others use it so freely; but it does not seem to work well with me."

"Oh! that is true. It won't work with some people. But I will tell you what to do. You take some whisky with it. 'Quinine and whisky.' That is what I take right along. It is the only thing that keeps me up."

I had taken a good look at my companion before, and had been fearing he was an intemperate man. There was not time, and I did not think it worth while, to tell him that I considered the remedy worse than the disease; but it kept going through my mind the rest of the day—*quinine and whisky*. I wonder how many doctors there are in this land of ours who tell their patients to take quinine and whisky. Grip is doing a great deal of harm, no doubt. An old doctor book, printed before grip was known, tells me that influenza is a peculiar disease that afflicts whole cities ; and of recent years it has been *still more* of a city and town epidemic. It breaks up schools and cripples factories; it keeps physicians running until they are worn out ; it causes an untold amount of pain and suffering, and sends many invalids and old people to their graves ; but, oh dear! grip is not a circumstance—not a drop in the bucket, compared with the ravages of whisky. Why! I think I am safe in saying that all the epidemics and plagues that ever troubled mankind are as nothing compared with intemperance. A man may die of smallpox, cholera, or yellow fever, and be an honest man and a Christian ; but when he dies of whisky it is not only a lost body but a *lost soul*.

When I was inquiring what God would have me do for the earache and toothache together the answer came very decidedly that whisky above all things was what the great Father would not have his people use. While I was kept at home with my face over the hot radiator, trying to get relief from pain, I prayed over this matter a good deal ; and right during my sufferings one of the clerks brought over to the house a bundle of papers and the letter I submit to you below :

Dear Mr. Root:—I take the liberty of addressing you because I feel led of the Spirit to do so. I have been a reader of GLEANINGS for a number of years through the kindness of a friend who lent them to me, and for about two years just past I have been a regular subscriber ; and dear old GLEANINGS is a very much loved and honored member of our family. I have loved very much to follow you through your many experiences in the Christian warfare as I find it recorded from time to time in Notes of Travel and Our Homes. If I can find words to express my feelings toward you I think I shall come the nearest to it by saying you have seemed very much like a very dear elder brother who has advised, comforted, and helped me many times when in sore perplexity ; but for a long time I have wished you knew God's way of healing ; what his will is concerning these things. I will not attempt to explain, but will leave that to the leading of the Spirit and God's teaching through his servant, Dr. Dowie. If you have any doubts or prejudices in regard to these things, for Jesus' sake and the sake of sin-stricken suffering humanity, ask God to help you to lay them all aside, and seek diligently for the *whole* truth until it is opened up to you in all its grandeur, beauty, and power.

I mail to you three copies of a paper printed in Chicago, in which you will find the true bread of life broken to the world. These are old numbers of the papers, but I send them to you because they have done a mighty work since they were published, and I feel that the Spirit of God especially accompanies them. I have thought many times what a power for God our beloved Bro. Root would be if he only knew God's way of healing; and I send these papers to you with a hope and prayer that, by his Spirit, he will lead you fully into the blessed truth that God sent the Great Physician that we might receive through him healing for our wounded bodies as well as soul and spirit; that he came indeed and in truth that we might have life, and that we might have it more abundantly.

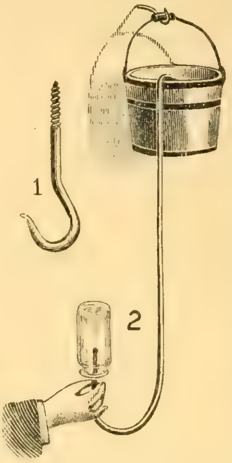
Your brother in Christ,
Edinburg, O., Jan. 12. G. G. NORTHRUP.

The papers that came with the letter were Leaves of Healing, from Dr. Dowie's establishment in Chicago. I have read these Leaves of Healing for a long time. I have also looked over Dr. Dowie's establishment while passing along the streets while in Chicago. There is certainly very much that is good in the Leaves of Healing; yes, there are some of the grandest truths, expressed with wonderful force, and I am glad that such a man as Dr. Dowie has been raised up to deal terrible blows at existing evils; but I do think that he makes some grievous mistakes; and, for that matter, is it not true that all of our great teachers, especially those who seem to have great gifts along certain lines, make more or less mistakes?

Let me thank the dear brother who sends the above kind letter, before I go any further. And then let me protest against one expression that Dr. Dowie uses quite often in his denunciations. It is this : "Doctors, drugs, and devils." No doubt there are doctors who *are* veritable devils. I do not know but I can go with Dr. Dowie and use that term for those who deliberately recommend their patients to use quinine and whisky for the grip. Perhaps they do not realize it nor mean to do it; but they are certainly doing the Devil's work when they tell a man to use such a remedy as that whenever the grip troubles him. Some druggists may be in the Devil's service—those, for instance, that stand behind the sign of a drugstore and then make their money by selling whisky indiscriminately; but God forbid that we should in this sweeping way call *all* druggists and *all* doctors "devils." Dr. Dowie makes some other serious mistakes in his vehement denunciation. In one of his articles one might almost think he classes the average minister of the gospel with the trio mentioned above; but I sincerely hope he does not mean that.

After reading the above exceedingly kind and Christianlike letter, and reading the Leaves of Healing sent me at an opportune moment, I began praying earnestly for wisdom in regard to this matter of remedies, not alone that my own pain and distress might be stopped, but that I might guide and direct others. I had been using powerful liniments to stop my toothache, and had got along pretty well; but the malady increased more and more. The liniment was needed on my face and in my mouth. I used these powerful drugs until pieces of skin the size of a finger-nail came off from the inside of my mouth near the gums. I also used the liniment in and around my ear, and I began wondering whether it was the intention of the great Father above that we should depend on things of this kind for relief. While thinking over the matter I went into a warm closet near by and knelt down and prayed very earnestly, not only for relief, but for wisdom that I might direct others.* I remember wondering, as I rose to my feet, if it were possible some strange thing might happen so this pain would be suddenly taken away; and my face began to brighten, even amid the pain, as a glimmer of faith began to creep into my heart. Then I remembered the picture I give you above; and it occurred to me that some of the readers of GLEANINGS said, when I gave the same illustration years ago, that this hot-water apparatus was just the thing for cleansing the nostrils and ears when one had ague in the face or cold and catarrh in the head.

APPARATUS FOR CLEANSING THE NOSTRILS, THROAT, AND EARS WITH HOT WATER.



The materials were right at hand, and in a few minutes I was passing a stream of hot water—just as hot as it could be borne—into my nostrils, first one side and then the other. The effect of the warmth in getting the water clear through the nostrils into the throat began to make me sneeze; and with the sneezing came a discharge that had accumulated in the nostrils and near the passages to the ear; and, sure enough, the pain was gone (almost as if by miracle), and it was done, too, without drugs or liniment of any sort—just hot water and nothing else.* Of course, this was only temporary relief; but it was ever so much better than the strong liniment. I got along in this way quite comfortably until the malady became so much worse that the water treatment gave relief for only a very short period. I managed to get through the night, and got a little sleep, but in the morning things seemed to be rather worse. Once more I went into the closet, and prayed. This time there seemed to be no answer to the prayer. While considering the matter I remembered that the prophet Elijah, when he told the servant to go up and look toward the sea, was told by the servant that there was nothing. Then the prophet said, "Go again." And it was not till he had gone *seven* times that he saw a little cloud appear. I then went into my closet, and prayed again. When I arose I had the same experience as before. There was a glimmer of faith that something was coming; and then it occurred to me that the little stream of water through the nostrils was insufficient, and if I could place the whole side of my head in very warm water the outside application of heat and moisture would aid the other. I thought of the vapor baths that are so much advertised nowadays, but none was handy. In a minute I procured a wash-basin, and some water as hot as my face would stand it without blistering, and placed it on the edge of the cook-stove, where the heat would be kept up to the proper point, and in a few minutes I was again free from pain. No more liniment or toothache cures were used; but it was three or four days before the trouble began to let up. The suffering was greatest in the night, notwithstanding rubber bags filled with hot water, and hot soapstones, etc. My sleep was feverish, and disturbed by troublesome dreams. Of course, I called in our family physician for advice. He gave me some medicinal remedies, but said he thought the trouble all came from a certain tooth. Then our dentist was called; but he said it was *grip* and *not* the tooth. My gums were *all* swollen on that side, and the teeth were all gold-capped, and it was going to be an exceedly difficult and distressing matter to pull the one the doctor pointed out, because it was one of a bridge of three. My face was so sore just then that just the *thought* of getting off the bridge and extracting one of the teeth almost crazed me. When doctors disagree, who shall decide? I prayed over the matter, and stuck to my hot-water treatment.

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* Some of the friends who read GLEANINGS express wonder and surprise that I should speak thus boldly right out in print about kneeling in my closet, and praying for wisdom or about other things that trouble me. I know this is unusual; and were it not for my great desire to help others along the same line, I would not do it; in fact, I often hesitate. But, dear friend, if I should tell you of going into a doctor's office, and having a long earnest talk with him, nobody would think it strange; and why should we be backward or embarrassed in telling about consulting the Great Physician, who holds even the winds and the waves in the hollow of his hand? Again, there are great sanitariums that have been built up on this very matter of faith cure, or relief that has come through prayer. There are so many different organizations of this kind just now that such proceedings need not occasion surprise or remark. The point I would make is that God both hears and heals in the humblest home as well as in an establishment like Zion's Tabernacle in Chicago

* At the present time, nearly two weeks since the above occurred, I have occasional touches of the earache; but this is banished almost instantly by simply cleansing the nostrils with hot water as indicated above; and one application gives me relief for several hours, and sometimes for a whole day. This comes right in line, as you notice, with my old hobby of doctoring without medicine. Pure air, pure water, and wholesome food—has anybody yet discovered how much these may do to get us well and *keep* us well?

During the night, when things were at the worst, I remember feeling a good deal discouraged. I had prayed again and again, and was sorely tempted to think that praying did not do any good, nor have any effect in the matter one way or the other. I knew such thoughts were wicked, and I begged piteously to be lifted above them I prayed for faith. Let me digress a little right here.

In considering this matter of grip I had been looking over the papers to see what the doctors said about it, and I remember seeing a statement that a lady in Cincinnati had committed suicide, evidently for no other reason than that she was crazed with the pain of grip. In my feverish state of mind that night, some evil spirit suggested that it was, after all, quite a reasonable thing to do. I have sometimes asked myself the question, "How does anybody *know* that the suicide escapes pain or trouble?" This evil spirit that hovered near suggested, "Why, there is no *question* in regard to the matter at all. When one is *dead* he does not have the toothache, earache, nor any thing else. Death is certainly freedom from *every* ache and pain. It is rest and quietness. And quietness, even if coupled with no consciousness at all, would be deliverance, say to yourself, just at this time." But even if I was dreaming I had sense enough to know I was getting near to greater danger than any bodily aches or pains could give. There are other ways to get acquainted with Satan besides drinking whisky. I groaned in anguish; I prayed more earnestly than I had before for deliverance from *all* the powers of darkness. And then came something that astonished me. The feeling had been slowly creeping on me that, although my prayers had been answered heretofore, just now there was no answer. The dear Savior was gone. The consciousness of his presence, that had been with me through all my Christian life, seemed to have left me, and faith seemed dying out. At this moment I either heard a voice speaking, or words seemed unfolding themselves to my imagination, at first dimly, and then bright and clear. The words were these: "My God, my God, why hast *thou* forsaken me?" At first, with the pain and misery I could not recall the circumstances, nor tell in what part of the Bible the words were found; but they startled me because they seemed to picture with remarkable vividness the very thought that was in my mind And then it burst upon me that they were the *dear Savior's words* just before he gave up his life—words that seem to have been wrung from his very soul by the terrible agonies he suffered. If the Father saw fit to withhold from *him*, his only Son, for a brief period, his wondrous love, could I reasonably complain if he, in his infinite goodness and love, thought fit to give *me* a little glimpse of existence without a sense of his love and of his loving presence? The answer that I had received in this strange way gave me faith and grace and patience to bear my troubles all through the rest of that experience; and shall we not all remember that Jesus, the Son of God, our Savior and Redeemer, did not have all his prayers answered? That is, God did not at once give him relief or did not *always* grant all his petitions. Let us remember here that Jesus never asked any thing for himself. He never performed a miracle to feed himself when he was hungry. Our prayers are almost all for self.

Now, before closing let me turn briefly to Dr. Dowie and his wonderful institution. If I am correct, in his answers to questions he says all pain is of the Devil, and that there is no need of suffering from pain. Now, I have never heard any one say that Dr. Dowie ever fails in curing any disease or any patient. Even he himself does not tell of his failures. We grant he has had wonderful success; that many diseases have been cured by prayer, that doctors called incurable; but in fairness should not the public be informed of the failures as well as of the successes? We often send dear friends to celebrated sanitariums; and a great many times we are told the sanitarium can do nothing because the patient was brought in too late. Jesus never found a patient that was too near death. In fact, it made little or no difference to him whether the patient was dead or alive when he was called. Now, these faith-cure people certainly do not claim any thing of *this* sort. Sometimes God grants their prayers, and the patient is healed; and may his holy name be praised for this! But those who claim to be so near to the great Father that he heals diseases for the asking, certainly must, in the nature of things, live very honest, pure, transparent, and clean lives. They must shun every *appearance* of evil or deceit. I have sometimes thought that perhaps God might, even in these latter days, see fit to commission some child of humanity with power to perform miracles; but that child would have to be more honest and pure than any human being I have ever yet seen or heard of. Please do not think me too hard on humanity, dear friends. God, in his loving kindness, carried me through severe suffering. In his loving kindness, as I understand it, he saw fit to give me a knowledge by *actual experience* of the suffering that many of us are called on to endure, in answer to my prayer to know what his holy will is in regard to using drugs and even harmless liniments. So far as I can gather, he seemed to sanction rather the use of pure water, and showed me how to use it.

I do believe God is pleased to have us call in our family physician, our family dentist, or the pastor of our church; but I do not believe it is his will that we should get through life propped up with drugs, stimulants, etc.; and in all these things where we are in ignorance I do believe, as the dear brother has said who wrote that letter, that his Holy Spirit will lead us if we put ourselves under his guidance.

May be I am not giving our family physician sufficient credit in this matter. He attended to the case very faithfully; asked questions; made suggestions; several times he inquired by telephone how I prospered. He emphatically objected to both quinine and whisky when I asked his opinion.* He said no stimulants of any kind were needed in such a case.† Of course, he gave it as his opinion that the tooth would have to be out before I could get relief; but when the dentist said he did not believe the tooth was the cause, the doctor pleasantly and willingly said he would do the best he possibly could without disturbing the tooth. Some of the faith-cure people will say I limited my faith in prayer by holding on to the doctors and hot water. You know they often claim that an invalid must show his faith by throwing away his crutches. In answer to this, permit me to say I put my entire case in the hands of the Great Physician unreservedly. I asked him to help me out of my trouble or else give me grace to bear it. I swept aside all my own notions or opinions, and looked to him, and to him only, for guidance; and I kept constantly in mind that relief for myself was a secondary matter; the first and foremost thing I begged and plead for was wisdom to guide, direct, and advise those who ask me almost every day what I would suggest in the way of treatment for certain maladies. Let me add one thing more; Both Dr. Dowie and Dr. Kellogg are certainly making a grave mistake when they say that the use of meat as food tends to develop the lower and baser passions. The effect of a lean-meat diet is just the contrary. Hundreds can attest this. It is *sugar* and *starch*, especially the former, that feed and inflame the lower passions. There need be no argument in regard to this. Every one who has tested the lean-meat diet will have noticed this distinctly; and after it has been followed for a month, or a series of months, the tendency of the diet becomes unmistakable. There are thousands of doctors who have yet to learn this fact; but they *might* learn it very easily if they would take a little pains. While I have gone over most thoroughly all the arguments of the vegetarians, I am obliged to believe that not only the teachings of the Bible, but experience, in modern days, indicates that it is God's will that at least many of us should use animal as well as vegetable food.

HIGH PRESSURE
GARDENING
BY
A. I. ROOT.

SPRAYING FRUIT-TREES — WORMY APPLES.

Prof. Slingerland, of Cornell University, has just given us, in Bulletin 142, the most complete history of the codling moth that it has ever been my fortune to come across. Prof. S. has followed the insect for years, has studied its various phases in various parts of the United States, and has traced it with such fidelity from the egg to the adult moth when she commences laying eggs again, that there can not be very much mistake in regard to the matter. He has also made himself thoroughly familiar with every thing that has been written on the subject. His work is illustrated by the most beautiful cuts, not only of the moth, larvæ, and eggs, but of the embryo apples at the time the eggs are laid. He tells us just why we spray, when to spray so as to do the most good, and also cautions about spraying when it does little or no good. The part that interests bee-keepers most is the following, which we take from page 58. The italics are original:

> *Never spray a fruit-tree when it is in blossom.*—You can reach the insect and fungous enemies just as effectively, and in some cases more so, either just before or just after the trees bloom.

The story is so well told that I read it with rare enjoyment from beginning to end, and read several portions of the bulletin over again. It rejoices my heart to know that the world contains such faithful, indefatigable students as Prof. Slingerland; and when such a man bends his whole energies, and ransacs the world for facts, he ought to be remembered gratefully; for getting rid of wormy apples the whole world over is no small thing, I tell you.

COAL OR GAS TAR FOR FRUIT-TREE BORERS.

On page 742 of our issue for Oct. 1, 1898, one of our subscribers gives a very emphatic recommend for gas tar. I felt a little uneasy about it at the time, for fear it might kill the trees; but I have just found a report from one of our experiment stations, backing up friend

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* Let me give you a little instance right here, emphasizing the wisdom of consulting your family physician. Huber has had a siege of malarial fever. Before he had sufficiently recovered he went out into the woods and climbed trees to put up a telegraph wire over to a neighbor's. Then he had a relapse. Some two weeks after he had recovered from the relapse, down he went again suddenly, and the fever thermometer showed 104 degrees. Mrs. Root and I were greatly worried, because we thought he was down with malarial fever the third time, and it seemed to us more severe and sudden than any of the previous attacks. When the doctor saw him he relieved our apprehensions very quickly by saying, "Yes, he has a fever, and a high one, but it is of another kind. There is no malaria about him at all. This is *grip* fever, and you need not worry about it." Sure enough, Huber was up and around the next day, and the day after that he was attending school. It is certainly wisdom to let a physician decide in the outset whether the trouble is something that may prove to be serious or nothing you need worry about.

† Among a certain class, "quinine and whisky" has become a stereotyped remedy for the grip; and there is not a question in my mind but that it is an excuse for taking drinks, and, may be, getting on a spree. The physician who tells his patients indiscriminately to take quinine and whisky, should be, by concerted public opinion, left without patients or practice, and given to understand that he is a useless relic (or worse than useless) of the past. Surely no Christian physician can lend himself to any such scheme of the evil one.

Barr; so I think we may consider it settled that coal tar is all right. Below is the clipping:

> Coal tar was very effectual, only a few borers succeeding in getting started in trees brushed with it, and it did no injury to the trees. The following proved sure death to the trees: Paris green mixed with glue, raupenleim (German caterpillar lime), and dendrolene.

DIGGING POTATOES BY MACHINERY DURING A WET TIME.

They say misery loves company. I felt a little ashamed to think we could not dig our potatoes with a modern high-priced digger, during the past fall. We clip the following from a recent number of the *Ohio Farmer*:

> But you can not dig clayey land when it is too wet to crumble and rattle through the elevator. We could use ours scarcely at all this year — about two hours of a single day—the rest of the time for five weeks it was too wet, and we dug with forks. But neither plow nor cheap digger would work.

Prof. Chamberlain uses a Hoover digger, if I am not mistaken. Well, I do not wonder it would not work. But ours were all dug with one of the cheap shovel-plow diggers notwithstanding. I find, however, we have more cut potatoes than usual.

WARNING AGAINST FRAUDULENT TREE-PEDDLERS.

The above is the heading of a newspaper bulletin from the Ohio Experiment Station. They say that our adjoining county of Wayne is infested with fruit tree swindlers who are charging five times the ordinary value for peach-trees. The swindlers claim these trees are proof against the yellows. The people at our experiment station caution the people of Ohio to beware of any man representing he has something new and wonderful that our regular nurserymen and expert fruit-growers know nothing about. The bulletin well says, "There are no horticultural secrets." It says further:

> Those who wish to get trees of any meritorious variety can procure them of any reliable nurseryman, at a fraction of the price asked by peddlers. No one need pay more than ten cents each for the best varieties of peach trees. Some new and untried sorts are held at higher prices, but no well-informed peach-grower would plant any except old sorts that are known to be good, and these are very cheap.

WHAT SHALL WE EAT?

We copy the following from a government bulletin printed in Washington, D. C., in regard to food and health.

> The cost of a diet may be lessened by consuming less fruit, cheaper cuts of meat, and fewer kinds of vegetables. Fruits add comparatively little to the food value of a diet, and the cheaper cuts of meat are as nutritious as the more expensive cuts. While vegetable foods are apparently essential to a well-regulated diet, no marked advantage is due to a great variety of vegetables. Wheat flour in the form of bread, etc., is one of the most nutritious and cheapest foods.

Please find inclosed subscription to GLEANINGS for another year. I think it a most valuable journal for the bee-keeper. Without it I might "keep" bees, but I certainly could not work them to advantage.

J. M. MITCHELL.
Glenhope Farm, Queensland, Nov. 11.

Our Roll of Honor.

I have been reading GLEANINGS since 1877.
Hogestown, Pa., Jan. 3. P. P. FORNEY.

I have been a continuous subscriber from the time GLEANINGS was printed by windmill power.
Fishkill, N. Y., Dec. 23. E. H. SHERWOOD.

I have read GLEANINGS since it was "Novice's windmill print," but can not say now whether I commenced with the first or second volume.
Canajoharie, N. Y., Jan. 5. JULIUS HOFFMAN.

I have taken GLEANINGS ever since the second volume was issued, and I don't think I have missed a number. H. C. GILSON.
Burr Oak, Mich., Dec. 31.

I commenced taking GLEANINGS when it had only two leaves, and have now 20 years' volumes. Others come and go, but GLEANINGS stays. It is instructive and elevating, and to me it has been a great financial success. M. ISBELL.
Norwich, N. Y., Dec. 21.

I believe I have taken GLEANINGS from the first number, with the exception that I subscribed the first year for the quarterly, and did not subscribe for the monthly until the next year. I must have had, during this time, a number of hundred dollars' deal with you, which has been satisfactory in almost every respect. J. I. PARENT.
Birchton, N. Y., Dec. 19.

I think I have taken GLEANINGS that long, but can not say for certain; but I was taking it before the centennial, in 1876. I recollect the piece you wrote about asking the old deaf lady to make you some starch so you could show how to make foundation at the centennial. I have no data to tell, but was a subscriber when you printed it by wind power. I have never missed a copy since. ROBT. QUINN.
Shellsburg, Ia., Dec. 20.

I claim to be one of those who have taken GLEANINGS from the first. I did not commence with the first number, but I sent and got all the back numbers, and have that first small number yet when it was started quarterly. GLEANINGS has always been a great help to me, not only in bee culture, but in almost every thing else; and wife and children have been benefited by it too. ILA MICHENER.
Low Banks, Ont., Can., Jan. 2.

Friend A. I. Root:—I commenced in the bee-business in the spring of 1870, and have taken GLEANINGS continuously since its first number. I believe I have every number up to date, as I bind them in book form by volumes. Its constant improvement is a credit, not only to the present editor, but to the father who trained him to do the work so well. Happy New Year. WM MUTH-RASMUSSEN.
Independence, Cal., Dec. 27.

I have taken GLEANINGS nearly all the time since it was published, and have the back numbers laid by now. I have been a continual subscriber to the *American Bee Journal*, and have nearly every number since it was started, 1861. The way I became acquainted with Mr. Root was by his writings in the *American Bee Journal*. I built the first extractor, and shipped the first extracted honey from this county. I have been in the business since 1860. I wish you a happy New Year. D. H. COGGSHALL.
West Groton, N. Y., Jan. 1.

My Dear Mr. Root:—I do not want a prize, but I want to let you know that I have taken GLEANINGS from the very first number, and that all the volumes except the last two are bound. I followed Novice's writings in the *American Bee Journal* before GLEANINGS was started and have with pleasure watched the gradual progress made, and the high moral tone adopted by GLEANINGS, and hope it may long live to carry on the same work, for the benefit of bee-keepers.

Wishing you a happy new year and long life and happiness, Yours truly,
Loomis, Cal., Jan. 9. THOS WM. COWAN.

As well as I remember, about 22 or 23 years ago I went down into Mason Co. to attend a Sunday-school convention, and stopped with a Mr. Beard. There I saw a honey-extractor for the first time, and for the first time I saw GLEANINGS. Mr. Beard very kindly gave me a copy of GLEANINGS when he saw how much

I was interested in it. It was the first work I ever saw on bee culture. I came home and read it from cover to cover. Then I said to Mrs. F., "I must send right away for GLEANINGS before they tell all they know about bees," for I thought it would not take more than two or three months to do that, and then I should have no further use for GLEANINGS. How far I missed the mark I can't tell, for here you are still going on, bringing new things out of the old, as well as introducing many new ones. C. M. FARRAR.

Confidence, W. Va., Dec. 29.

Special Notices by A. I. Root.

ROCKY FORD CANTELOUPE MELON.

I notice our seedsmen want over $1.00 a pound for Rocky Ford grown seed. Now, while we were eating them there by the carload at Omaha, why didn't somebody think to save some seeds? and can't some of our Rocky Ford friends do a little better than the above on prices?

OUR FIRST STEAM-ENGINE.

On page 24 of our Jan. 1st issue I spoke of getting a 4½-horse-power engine to back up the windmill when the wind did not blow; but at that time I did not know that the maker of that first engine had at the time a standing advertisement (see page 111). It seems that he has been in the same line of business for over 25 years; and the low-priced engines manufactured by James Leffel, Springfield, O., are still doing a vast amount of work of different kinds throughout our land. After using ours for several years we sold it at a very fair price, and since then it has changed hands ever so many times; and it has been hauled around here and there, and the last I heard of it it still was doing good service although exposed to the weather and all sorts of rough handling.

TWO NEW ONIONS.

When I made up my list of novelties for our last issue I omitted two new onions—the Gigantic Gibraltar and the Australian Brown onion. The former is much like the Prizetaker, only larger, and so far every plant seems to produce a big nice solid onion. For starting in the greenhouse and transplanting in the open air, they are the best onion known, so far as I have heard. But, unfortunately, they are not a very good keeper. They should be sold not very long after harvesting them. The other one, the Australian Brown, is about the best keeper of any onion known. In fact, they have been kept over a whole season so that, when the old and new onions were placed side by side, one can hardly tell one from the other. Prices of the latter will be: Packet, 5 cts.; ounce, 20 cts.; pound, $1.75. Price of the Gibraltar: Packet, 5 cts.; ounce, 25 cts. It is said that neither kind ever produces any stiff necks or scullions. And by the way, this is often the case with any onion for the first few years after its introduction. After the seed gets generally in the market, and the price gets down, then seedsmen become careless about growing the seed. For this reason alone it sometimes pays to test new varieties of onions.

TEN DOLLARS FOR A SINGLE POTATO.

You may remember that, a year ago last October, Wm. Henry Maule permitted me to take one potato from T. B. Terry's, with the understanding that all I succeeded in growing from one potato *in one year* should be Maule's property, I to have $1.00 a bushel for growing them. Well, I grew three bushels; and after receiving my $3.00 I asked Maule what he would take for the potatoes. He said they were worth to him $10.00 per barrel; and as his stock was limited he did not care to sell for any less than that. I was somewhat disappointed because I did not succeed in getting more than three bushels from the one potato; but when I received Maule's 1899 catalog I saw where the trouble lay. This new potato is named the Commercial. Among its other qualities let me quote the following in regard to keeping:

> I have a record of keeping the tubers in perfectly good condition, in ordinary storage, until August of the year following their production. The potatoes were just as edible and mealy Aug. 15 as the day they were dug.

You see, I took that potato home and tried to make it sprout in the greenhouse. I fussed with it a great part of the winter, but I could not make the eyes sprout, to save me, till toward spring; then when I succeeded in getting some new potatoes in the greenhouse I had the same trouble in getting these same new potatoes to sprout in the open ground, so that the frost caught them before they had really done growing. Now, the very peculiarity that made this potato a bad one to grow one crop in the greenhouse, during winter, and another in the open air, during the summer, is one of its most valuable characteristics. If planted in the ordinary way it is medium early, and I believe it is the largest yielder of any potato I have ever got hold of. It is a seedling of the Wilson Rose, and is of the Rose type, and it certainly has great constitutional vigor. If any of our readers care to try it we will furnish it, by the pound only, at Maule's prices. Single pound, postpaid by mail, 50 cts. You may remember that T. B. Terry grew in the open air nearly two bushels of tremendously large nice potatoes from a single potato that Maule furnished him.

WHAT ARE YOU GOING TO GROW THIS SEASON?

A good many people are afraid to grow perishable crops for fear they may not be able to sell them all, or because they do not want to be obliged to stop their work to take care of the crop just when it is at its best. These perishable crops, like strawberries, snap beans, etc., bring the most money; but one must make a business of it to sell them. What can we grow that will have at least some value, even if we do not succeed in selling it when it is just right for the table? Well, there are quite a number of things. To begin with, all the beans we list are valuable in the dry state; and just now I could offer from $1.50 to $4.00 and even $5.00 a bushel for any of the beans we advertise if anybody had any to spare. Burpee's bush lima especially has for several years been worth from $3.00 to $5.00 a bushel for the dry beans; and I do not know what is to hinder somebody growing an acre and making "big money," unless it is the first cost of the seed. Of course, sell all you can for green beans. There is seldom a time they can not be sold at a good price in any town or city. If the people do not want them all green, just let them get dry and thrash them out.

If you have horses or cattle you can grow all kinds of beets. Sell them green if you can; if you can not, feed them to stock. In growing roots for stock, however, we have had rather the best success with carrots. These always sell for enough to pay quite well for growing; and although there may be horses and cattle that will not eat *sweet clover* when it is nice and green, I do not think you will find one that will not eat carrots with avidity, and thrive on them. Mix the carrots in with the dry feed along in winter and spring, and see if you do not call it a good investment.

Sweet corn can also be fed to horses and cattle if you can not sell it all green.

And you want to grow some onions. When they are just right to pull, give great big bunches for a nickel. Astonish people by the big lot of handsome ones you give for a small amount of money. Also grow some sets. Every little while onion-sets are worth from $3.00 to $5.00 a bushel. Get a variety you can handle; learn how to grow them, and then have some on hand every spring, and you will hit it once in a while, *sure*. And Hubbard squashes. Did anybody ever know a time when nice Hubbard squash would not sell for enough to pay a big profit on the investment? But you must have the ground rich. Clean out the poultry-house and the pigpen, and work the contents into the ground thoroughly. Spread your compost-heap where you are going to have your squashes. Then wherever you plant a hill, dig down a foot or a foot and a half, and make the hill a yard across, and dig it over every little while till it is time to plant the seeds. Then use the squash-boxes with a pane of glass on top. You must meet the first bug more than half way, and so on with the second and third. Scare them so badly to begin with that they will think the locality is not healthy; then after every thing else is off the ground put in some turnips and manage in the same way.

Meanwhile do not forget potatoes. Have them on the market before any one else in your neighborhood has thought of such a thing. Then when everybody else is bringing them in, get ahead of them all by showing some *nicer* ones than anybody else has seen. Then have potatoes coming along ready to dig clear up till frost. If they do not bring a good price in the fall, have some in the spring a little nicer and a little better than anybody else.

Now, if you want seeds of all these things look over our list in our last issue or send for our complete seed catalog. Please note our exceedingly low prices on beet seed, carrot seed, parsnip seed, squash seed, etc., in 5 and 10 pound lots.

SEED DUE BILL FREE

To get new customers to test my seeds I will mail my handsome **catalogue for 1899,** lithographed and beautifully illustrated, and a **10c. Due Bill,** good for 10c. worth of seeds for trial, **absolutely free.** It is full of bargains. All the **Best Seeds, Bulbs, Plants, Roses, new Fruits, Farm Seeds, Potatoes, etc.,** at lowest prices. **Ten Great Novelties** offered without names. I will pay **$50. FOR A NAME** for each. Don't buy your stock until you see this new catalogue. Several varieties shown in colors. Great inducements for orders this year. **You will be surprised** at my bargain offers. Send your address on Postal to-day. Tell your friends to send too. Old customers will receive a copy.

F. B. MILLS, Seedsman, Box 105. Rose Hill, N. Y

In writing, mention Gleanings

In buying seeds **"economy is extravagance,"** because the cost of cultivation wasted on inferior seeds always largely exceeds the original cost of the best seeds to be had. The best is always the cheapest. Pay a trifle more for

FERRY'S SEEDS

and always get your money's worth. Five cents per paper everywhere. **Always the best.** Seed Annual free.

D. M. FERRY & CO.,
Detroit, Mich.

SPRAYING

with our new patent

KEROSENE SPRAYERS

is simple indeed. Kerosene Emulsion made while pumping. 12 varieties Sprayers, Bordeaux and Vermorel Nozzles, the **"World's Best."**

THE DEMING CO. SALEM, OHIO.

Western Agents, Hennion & Hubbell, Chicago. Catalogue and Formulas Free.

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MONEY IN CABBAGE

IF YOU PLANT THE RIGHT SEEDS

My new Seed Book tells all about the best varieties of **Cabbage** and everything of interest in seeds; how to grow them for **profit,** etc.

Write to-day FREE Mention this Paper

and will send you a sample package of **Buckbee's Rockford Market Cabbage. The BEST on earth,** together with Beautiful and Instructive **Seed and Plant Book.**

H. W. BUCKBEE,
Rockford Seed Farms,
P. O. Box 614
Rockford Ill.

In writing, mention GLEANINGS.

NEW STRAWBERRIES!

Most complete list of popular varieties in Michigan. Strong, healthy plants **FRESH DUG** and **GUARANTEED** to all parts U.S. and Canada. We also make a **Specialty of Choice Michigan Grown SEED POTATOES.** Send for descriptive **FREE CATALOGUE** and note what our customers in many states say about our **carefully grown and graded stock.**

FLANSBURGH & PIERSON, Leslie, Mich.

Mention this paper.

EVERGREENS

100, 6 to 8 in. $1; 12 to 18 in. $2.50. 100, 2 ft. $10 prepaid. 100, 4 to 6 ft. 5 varieties, $15. 45 choice Fruit trees, 20 varieties, $10. **Ornamental & Fruit Trees.** Catalogue and prices of 50 great bargain lots **SENT FREE.** ☞ **Good Local Agents Wanted.**

D. HILL, Evergreen Specialist, **Dundee, Ill.**

In writing, mention Gleanings.

350,000 Peach, 150,000 Plum, 150,000 Pear, 75,000 Cherry, 150,000 Apple, Quince, Apricot, Mulberry, etc., 50,000 Nut Bearing Trees, 2,000,000 Small Fruits, 1,000,000 Roses. Headquarters for

ORNAMENTAL TREES AND SHRUBS. 44

greenhouses filled with choice **Roses, Palms, Araucarias, Ficus, Ferns, Geraniums, etc.** Correspondence solicited. Catalogue and price list free.

THE STORRS & HARRISON CO., Box 416, PAINESVILLE, OHIO.

GET THE BEST. Buy your **Strawberry Plants of W. F. Allen, Jr.,** who undoubtedly has the largest stock and finest selection of vigorous, healthy plants in the world. This stock is of his own growing and he knows that it is pure.

HE GROWS ALL THE PLANTS THAT HE SELLS

and they are all fresh dug at the time of shipment. No cellar-stored, reshipped and repacked stock. **32-page illustrated and descriptive catalogue free.** Address

W. F. ALLEN, JR., BOX 26, SALISBURY, MD.

REID'S FRUITS

Every tree, plant or vine bought at Reid's is well-rooted, vigorous, and true to name. Every care is taken in growing to insure absolute certainty to the buyer. **Save one-half** on anything you need in the nursery line, by buying at Reid's.

We'll help you to choose by sending complete catalog, estimates, or any information you may ask for, **free.**

REID'S NURSERIES, BRIDGEPORT, OHIO.

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Why not Have the Best?

The ever increasing demand for **COLUMBIA AND HARTFORD BICYCLES** has reached a point that renders it possible to run our great factories to their full capacity. This immense volume of business enables us to offer these **STANDARD** wheels at prices but little higher than the price of the poorest.

COLUMBIA and HARTFORD.

Price Reduced. Quality Maintained.

Columbia Chainless,	$75	Hartford,	$35
Columbia Chain,	40, 50	Vedettes,	25, 26

Our 1899 models show marked advancement in mechanical construction. The best machines we have ever built. That means their equals do not exist.

SEE THEM.

POPE MANUFACTURING CO., Hartford, Conn.

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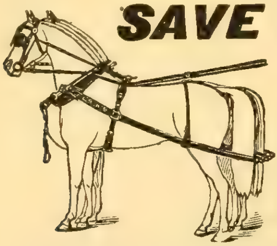

SAVE $8 ON A HARNESS!

We are the largest manufacturers of harness and carriages in the world selling to the consumer exclusively.

WE HAVE NO AGENTS, DEALERS OR MIDDLEMEN.

We sell you direct from the factory at wholesale prices and save you all additional expense. We ship anywhere for examination. We guarantee and warrant everything.

This Elegant Team and Farm Harness for $19.50

Many customers who have bought it report that they have saved from $8 to $10 in buying this harness from us. For full description of this and 60 other styles of harness and 125 styles of vehicles see our new Illustrated Catalogue. Your name on a postal card will get it.

ELKHART CARRIAGE & HARNESS MFG. CO. W. B. PRATT, Sec'y, **ELKHART, INDIANA.**

In writing advertisers, mention GLEANINGS.

Our Factory is the Largest,

Our Facilities are the Best.

We are Located

on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

We kiln-dry our Lumber, and Manufacture

BEE-HIVES, SECTIONS, AND SHIPPING-CASES.

We Handle Bee-keepers' Supplies. We are Prompt Shippers.

Write for catalog.

Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.

Best Seeds that Grow!

Thousands of Dollars in CASH PRIZES for 1899

and many other. New Features, of particular interest, presented in

BURPEE'S Farm Annual

Leading American Seed Catalogue Mailed FREE to all.

A handsome **new book of 176 pages,**—tells the plain truth about Seeds, including rare Novelties which cannot be had elsewhere. Beautiful colored plates and hundreds of illustrations from nature. Gives practical information of real value to all who would raise the choicest Vegetables and most beautiful Flowers. **Write a postal card TO-DAY!**

W. ATLEE BURPEE & CO., Philadelphia

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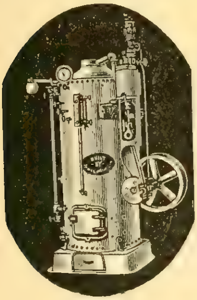
A FARM POWER

IS A NECESSITY



in the practice of modern agriculture. They are **needed for shelling corn, grinding feed, cutting fodder or ensilage, separating cream, wood-sawing, pumping water**, and a host of other things.

LEFFEL ENGINES and BOILERS

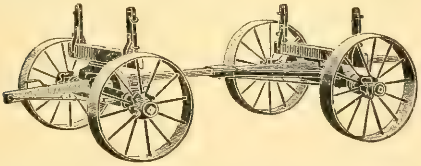
are clearly the best for the purpose. Either **Upright or Horizontal**; from 3 h. p. up. Safe, simple, easy to run. They are quick steamers, and require little fuel. Pamphlet with prices on application, stating size power wanted.

JAMES LEFFEL & CO., Box 44, Springfield, O.

In writing, mention Gleanings.

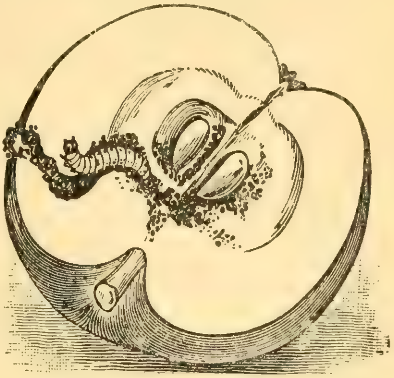
BUY THE BEST.

If you want the best low-down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad-tired Electric wheels; best seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red, and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 95, Quincy, Illinois, for their new catalog which fully describes this wagon, their famous Electric Wheels, and Electric Feed-cookers.



SPRAYING FRUIT-TREES.

The question of spraying fruit-trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalog describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking.

Maple Syrup and Sugar

are scarce this season; the bogus article is never so. We can please you if you want the pure maple.

2 to 6 gallons fancy syrup at 90c; Nos. 1 and 2 grades, 5 and 20c less per gallon respectively. For more than case lot, club order, etc., write.

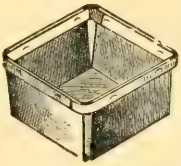
AS TO OUR RELIABILITY, write Boughton, Ford & Co., Bankers, Burton, O., or Adams & Ford, Cleveland, O.

Ohio Maple Syrup Co., Burton, Geauga Co., O.

In writing, mention Gleanings.

Fruit Packages of All Kinds.

—ALSO—



Bee-keepers' Supplies.

We allow a **Liberal Discount** on early orders. Why not send for your supplies now to save the discount and avoid the rush of the busy season? Catalog and price list free. Address

BERLIN FRUIT-BOX Co.,
Berlin Heights, - Erie Co., Ohio.

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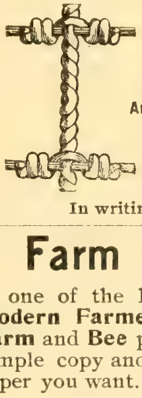


YOU CAN USE

Coiled Spring, Cable, Barbed or Smooth Wire in our

$10 MACHINE

And Build the BEST Wire Fence at 16 to 24 Cents per Rod.

Agents Wanted. Write for Catalog

BOWEN CABLE STAY FENCE CO.
Box 62, Norwalk, O., U. S. A.

In writing, mention GLEANINGS.

Farm Bee-keeping

Is one of the leading departments in the **Modern Farmer and Busy Bee,** the best **Farm** and **Bee** paper in existence. Write for sample copy and for clubbing rates with any paper you want.

E. TAYLOR ABBOTT, St. Joe, Mo.

Special Notices.

BUCKETS, COVERS, SAP-SPILES, AND CANS FOR MAPLE SYRUP.

We are ready to mail on application a leaflet giving exceedingly low prices on implements for making sugar. Please do not forget our maple-sugar book, sent postpaid by mail for 25 cts., if you expect to do any thing with maple sugar the coming spring.

HONEY.

We have a good supply of various grades of comb honey to offer to those who may be in the market. Send for prices. We are in want of good extracted honey, and should like to hear from those having any to offer, stating how put up, quantity, and price asked. White extracted preferred.

CATALOG FOR 1899.

We have already printed a large edition of our new catalog except the cover, which goes on the press next thing after printing this number of GLEANINGS, and we will soon be mailing large quantities of them. Our list of names is so large that it will take us about two months to make, and mail all of them. If you get tired waiting for yours to come, drop us a postal request, and we will send you one; and when you receive the regular one from the list, hand it to some one interested.

To avoid advancing prices on foundation during the season, we have placed the list price high enough to cover any ordinary advances in the price of wax, and until April 1st, or further notice, we will sell foundation 2 cents a pound less than the prices listed in the catalog, which are the same as given in last issue of GLEANINGS.

Within the past two weeks there have been two further advances in the price of sheet zinc, making a total advance since last May of about thirty per cent. We have not advanced the price of Tinker zinc; but on Root zinc the price is $1.40 per sheet, and an advance of 2 cents each on honey-boards over the price ruling last year.

A NEW STRAWBERRY—THE NEW YORK.

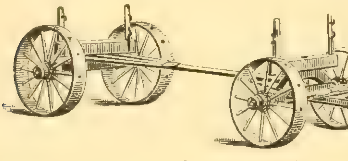
The great strawberry specialist, Mr. W. F. Allen, of Salisbury, Md., in 1897 offered $100 in gold to anybody who would produce a better strawberry than the Glen Mary. The berry was produced by a schoolma'am; and after she received the $100 here is what she says about it:

> "Pleasantly surprised!" Well; I should think so. To say I was delighted when the express agent handed me that package yesterday afternoon would but faintly express my feelings. For the past two or three years I have tried nearly all the new varieties, and never in all the trials have I found a berry that gave me as much satisfaction and profit as my new seedling, the "New York." I was satisfied that we had a superior berry when the boarders here were so anxious to carry berries home with them, gladly paying us 25 to 30 cents per quart, when we were selling our other berries for 8 and 10 cents per quart
> MARTHA G. YATES.
> Tompkins Co., N. Y., Jan, 1898.

The berry is a selected seedling from the Bubach and Jessie. The price is only $5.00 for 12 plants. Mr. Allen controls, of course, the entire stock. One does not want to buy a great many at that price; but we have already sent in our order for two plants, and expect to report in regard to them during the season.

Farm Wagon for only $19.95.

In order to introduce their low metal wheels with wide tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of $19.95. The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire.



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Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange apiarian supplies for colonies of bees from the South in April.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Man who understands bees, gardening, and hotbeds, for coming season. Must give reference. JAS. WEST, Box 229, Montpelier, Ind.

WANTED.—To exchange one thousand wide frames with tin separators, for something I can use.
C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—To exchange two small printing-presses and printing outfit for bloodhounds, ferrets, fancy poultry, bicycles, or something I can use.
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WANTED.—No. 1 white comb honey in 4x5-inch sections; also to furnish my hives and 4x5 sections for a share of the next honey crop, to parties within 100 miles of this city. Address *at once*
F. DANZENBAKER, Washington, D. C.

WANTED.—Young man who does not use liquors or tobacco to work the coming season on farm where honey, fruits, and general farm crops are raised. Give references. C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—Your address for a free copy of my book on queen-rearing.
HENRY ALLEY, Wenham, Mass.

WANTED.—To exchange No. 1 Star sweep feed mill, 2 horse, good as new, for rifle, shot gun, bicycle, or offers. D. V. McMANUS, Forestville, N. Y.

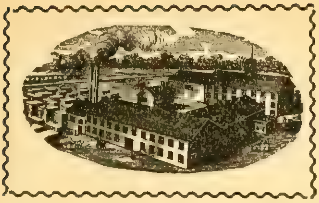
WANTED.—Position in California apiary. Can take full control. References if wanted. Age 29. Single. T. P. MURREY, Fort Collins, Col. L. B. 585.

WANTED.—To exchange raspberry plants (Gregg) for queens, nuclei, or something that can be used in bee-yard. J. E. HENDERSON,
Box 7, Elm Grove, Ohio Co., W. Va.

WANTED.—By a practical apiarist and queen-breeder, a position, in any locality; or an apiary on shares. ABBOTT L. SWINSON, Goldsboro, N. C.

WANTED.—To exchange for 25 or 30 H. P. engine and boiler or offers, the Ronda machine and engine boiler we have, both to apply.
RONDA MFG. CO., Ronda, N. C.

WANTED.—To exchange supplies, nursery stock, or seed potatoes, for printing-press, honey, or wax.
O. H. HYATT, Shenandoah, Page Co., Iowa.



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Smoke Engine (largest smoker made.)	4-inch stove.	Doz. $13.00;	each, by mail,	$1.50
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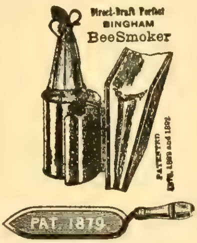

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W. D. SOPER, Box 565, Jackson, Mich.

The Bee-keepers'

REVIEW

for December shows in its frontispiece "The Neatest Apiary in Michigan," and the owner of this apiary, or, to be more exact, his son, contributes an article upon "Beauty and Neatness" in which he shows that they are of more importance in the apiary than they are generally given credit for.

Mr. Harry S. Howe, Mr. W. L. Coggshall's "lightning operator," tells how he reads the bee-journals—what is wanted in them, and how to get the most out of them.

There is an editorial of nearly three pages upon "Success." It is not a lot of dry platitudes and generalities; it is full of freshness and vigor, and of illustrations drawn from the editor's own experience. The reading of it may change your life from the dull common place to one of unbounded success.

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W. Z. HUTCHINSON,
Flint, - - - Michigan.

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is never desirable or justifiable. It is worse than waste to put high priced eggs in a poor, imperfect incubator.

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240 EGG SIZE.

not only prevents such waste, but turns failure into success. Regulates perfectly as to **heat,** and ventilation. Guaranteed. Send at once for **FREE** catalogue.

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Including their discounts for goods wanted for use another season. It will pay you to send me list of goods wanted.

M. H. HUNT,
Bell Branch, Mich.

Cash for beeswax.

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Honey Column.

CITY MARKETS.

DETROIT.—Fancy white comb honey, 13; No. 1, 11@12½; fancy, dark, and amber, 9@11; extracted white in good demand at 6@7; dark, 5@5½; beeswax, 26@27.
Feb. 9. M. H. HUNT, Bell Branch, Mich.

MILWAUKEE.—At this time the honey trade is at a standstill. The weather is very cold, and demand is very small. We expect, in the near future, trade will improve. Market is steady for best qualities, while the off grades are inclined to accommodate the buyer. We continue to quote as follows: fancy 1-lb. sections, 13@14; A No. 1, 12@13; No. 1, 11@12; dark or amber, 10@10½; extracted, in barrels and kegs, white, 6½@7½; dark, 5½@6; beeswax, 27@28.
A. V. BISHOP & Co.,
Feb. 9. Milwaukee, Wis.

BOSTON.—The demand for comb honey is very light, with full stock on hand. We quote our market as follows: fancy white, 13@14; A No. 1, 12; No. 1, 11@12; light amber, 9@10; no demand for buckwheat; extracted white Northern stock, 7@8; beeswax quiet at 27@28.
BLAKE, SCOTT & LEE
Feb. 8. 57 Chatham St., Boston, Mass.

CHICAGO.—Weather is zero these days and honey does not sell, as it is too cold for people to get out. Price of fancy white, 13; good grades of white and amber, 11@12; dark and amber, 8@10; and with mild weather we look for a good demand. Extracted, 6@7 for white, 5@6 for amber; beeswax, 27.
R. A. BURNETT & Co.
Feb. 8. 163 South Water St., Chicago, Ill.

PHILADELPHIA.—The demand for honey has fallen since last quotations, but prices remain firm. Fancy comb, 15; No. 1, 12; amber, 10; dark extracted, 5½; amber, 6; white, 7; beeswax, 27. We are producers of honey—do not handle on commission.
WM. A. SELSER,
Feb. 10. 10 Vine St., Philadelphia, Pa.

ALBANY.—No. 1 white clover selling at 11@11½; No. 2, 9@10; mixed, amber and buckwheat, 7@8½; extracted, white, 7@7½; dark, 6@6½.
MACDOUGAL & Co.,
Successors to Chas. McCulloch & Co.,
Feb. 8. Albany, N. Y.

CLEVELAND.—We quote our honey market to-day as follows: Fancy white, 13@14; No. 1, 12@12½; light amber, 11; buckwheat, 8; extracted, white, 7; light amber, 6.
A. B. WILLIAMS & Co.,
Feb. 9. 80-82 Broadway, Cleveland, Ohio.

FOR SALE.—Fancy white extracted alfalfa honey in 60-lb. cans at 7c per lb.; in lots of 500 lbs. or more, 6½c per lb., f. o. b. cars Denver. Sample by mail 8c.
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Well, neighbors, what can I buy your honey at in lots of one hundred pounds and up? What is it gathered from? What grade is it? and how is it put up?
T. L. SHAFFER, Lake View, O.

WANTED.—Quantity lots of amber and white extracted honey. Send samples. B. WALKER,
No. 455 W. Van Buren St., Chicago, Ill.

Wants and Exchange.

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WANTED.—To exchange supplies, nursery stock, or seed potatoes, for printing-press, honey, or wax.
O. H. HYATT, Shenandoah, Page Co., Iowa.

WANTED.—A position in apiary or upon farm; experienced hand; age 21.
F. W. MANLEY, New London, Ohio.
Mr. Manley, was in my employ the past season, and I cordially recommend him to you as a good man for farm or apiary. DAN WHITE, New London, Ohio.

WANTED.—Position in California apiary. Can take full control. References if wanted. Age 29. Single. T. P. MURREY, Fort Collins, Col. L. B. 585.

WANTED.—Hand or foot power combination saw.
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This is one of the standard works on bees. Thoroughly practical, fully illustrated, 460 pages, 1899 edition. Price $1.25 Or, for $1.70 we will mail you this book and the AMERICAN BEE JOURNAL for one year if you are a NEW subscriber.

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If you desire to know how to have queens fertilized in upper stories while the old queen is still laying below; how you may safely introduce any queen at any time of the year when bees can fly; all about the different races of bees; all about shipping queens, queen-cages, candy for queen-cages, etc.; all about forming nuclei, multiplying or uniting bees, or weak colonies, etc.; or, in fact, *every thing* about the queen business which you may want to know, you ought to have G. M. Doolittle's wonderful book, "Scientific Queen-rearing." Price, bound in cloth $1.00; or, for $1.60 we will mail this book and the AMERICAN BEE JOURNAL for one year, if you are a NEW subscriber.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR — MEDINA, OHIO.

VOL. XXVII. FEB. 15, 1899. No. 4.

STRAY STRAWS FROM DR C. C. MILLER

HOW'S THE GRIP your way?

PERHAPS one mistake in the honey leaflets is printing the price on them so customers can see how little they cost.

EIGHT FOUL-BROOD inspectors in Colorado inspected 4885 colonies; found 233 diseased, and destroyed 31.—*Amer. Bee Journal.*

I MIGHT SELL friend Atherton (p. 96) some wide frames cheap, but he's never done me any harm, and I wouldn't advise him to take them.

PROF. COOK argues in favor of the belief that all honey dew is of insect origin, but I think I've read just as strong arguments on the other side in foreign journals.

FRUIT BLOSSOMS covered with netting to keep out the bees remained one to seven days longer than those uncovered; apparently waiting to be fertilized.—*Bienen-Vater.*

I DON'T KNOW enough to know whether Adrian Getaz' logic is all sound, p. 89, but I do know that if I could have all colonies strong the last of April I'd risk the useless consuming they'd do.

H. S. PRICE says in *American Bee Journal*, that from a fruit-farm he got only $16 instead of $1600 because too rainy for bees to fertilize the blossoms. Others without bees got nothing [See Pickings.—ED.]

IT IS PLEASANT to know that *Deutsche Illustrierte Bienenzeitung*, formrely so ably conducted by the lamented Gravenhorst, is to continue under the editorship of his son Hugo, assisted by his sister Franciska.

AN EIGHT-FRAME HIVE is not as safe as a ten-frame for one who pays little attention to his bees; but it's *big enough* for any one who is allowed to use two stories. I'm sure a ten-frame is sometimes too small for me.

IN REPLY to friend Pettit, p. 95, I may say that I've always had separators ¼ inch below tops of sections, and used insets manufacturers happened to make, and have not been troubled with bees building in the space thus made.

THE FOUL BROOD LAW of Colorado is somewhat radical. If I understand it, as given in *American Bee Journal*, when a man has foul brood, and 20 of his neighbors know of it, himself and his 20 neighbors will each be liable to a fine of $5 and costs.

"PICKINGS," the new department in GLEANINGS, is a child of promise. I don't dare to say otherwise. "Stenog" is the man who untangles my punctuation, and keeps an eye on my English; and if I vex him he might print my stuff just as I send it.

HERR SCHROEDER, in *Centralblatt*, says mead can be made free of alcohol. If a wholesome, popular drink could be prepared from honey, it would make quite an outlet. Now will some of our good German friends tell us just *how* it is made?—wenn es Ihnen gefaellig ist.

A CHEEKY CHAP is Pres. Aikin, of Colorado. At their convention he talked about the State association being second not even to the National. Well, I don't blame him. What other State association has 154 members? Pres. Aikin and Sec'y Rauchfuss are both hustlers and fine fellows.

DR. MASON says, in *Amer. Bee Journal*, that his bees breed in cellar—believes they're stronger now than in November. Critic Taylor says his can't be depended on to lay later than Sept. 10, and they average only 5½ months in the year. Can't these two brethren make some kind of compromise? How would it do for them to swap queens?

ACCORDING to the first edition of the Standard dictionary, the honey contained in a section box may be called a section. A number pitched into me insisting that it was not so used outside of Marengo, and I asked the publishers to expunge that definition. Now comes S. T. Pettit, p. 95, and says it's right. I might have let the definition stand, adding in brackets, "Local; Belmont, Marengo."

THAT GUESS of the editor, p. 77, that "in the majority of cases it is chunks of propolis" that blacken combs will hardly do. Don't queenless bees deal in propolis? J. E. Crane says, p. 44, that brood-combs in a queenless colony were pure white after four months. That could be better explained on the theory in one of the foreign journals (I forget which), that the dark color is caused by the first dejections of the young bees, which are of such intense yellow as to appear black.

HONEY-BATHS, according to *Bienen-Vater*, are very much in fashion in Paris to give fullness to ladies beginning to fade. [I do not take much stock in offering a good thing on the outside. Good nutrition and an unclogged condition of the alimentary canal will do more to take out the fade than any thing else; and more to keep off grip than all the medicines that were ever concocted. Don't you think so, doctor?—ED.]

ACCORDING to some interesting figures given by G. M. Doolittle, in *Amer. Bee-keeper*, honey brings 35 per cent as much to-day as it did 25 years ago, while supply-dealers get only 20 per cent as much for sections; this, too, with the extra burden of now making two sections for 2 pounds of honey instead of the former one section. Evidently supply-manufacturers have done their share toward meeting low prices. [See Pickings.—ED.]

THE TROUBLE about raising money for the Langstroth monument is the false pride that prevents a man contributing unless he can give a large sum. French bee-keepers are giving 10 cts. and upward for a monument to de Layens, and have reached nearly $300. [That is the way, of course, to raise the monument fund. While we have a few small subscriptions for the Langstroth monument, some of them are as large as $25.00.—ED.]

IF L. STACHELHAUSEN is correct, as I think he is, as to the effect of baits in supers, p. 85, then they form quite a factor in prevention of swarming. Forcing bees to begin on raw foundation in super by the crowded condition of the brood-nest is forcing them just so much toward swarming. [This is a good point. It is one of the golden nuggets that appear in the ordinary articles of some of our contributors, but which the editor had not seen. I now desire to give it all the prominence I can, as I believe there is a good deal in it.—ED.]

HASTY is incorrigible. The idea of his talking the way he does on page 81, when a faithful friend tries to mend his manners! The worst thing is the evil of his bad example. The editor had begun trying to reform, and now with Hasty's vicious lead there's no telling where he'll go. [Hasty is all right; but I suppose I shall have to take middle ground now. At least nine-tenths of the A B C book, last edition, has adopted the neuter pronoun, and it is too much of a job now to change back, hunting out all the *its* and making them *he* again. As it is, I have a mortal fear that in some places it may read *it* and *she* both. Indeed, I know it does on two or three pages, greatly to my mortification; so if you see the inconsistencies, do not say any thing about it until I get a chance to rectify them.—ED.]

ONE REASON I want cleats on hives to go clear across is to strengthen the weak place left by the rabbet. Another is that I want to be able to take hold at any part, and sometimes two of us want to carry one hive. [Running a cleat clear across the front and rear of the *regular Dovetailed hive* with its cleated cover would not strengthen the weak place left by the rabbet, for the reason that the cover cleats drop down ½ inch, nearly, and consequently the lifting cleat would have to drop down ⅝ inch, and that would bring the top edge at a point just about on a level with the bottom of the rabbet. On the other hand, doctor, your hive-covers are cleated in such a way that there are no downward projections. This allows cleats to come clear up flush with the top edge of the hive. I can not see what other advantage there is in having cleats reach clear across the hive-front unless it is where two persons carry hives with the rope lift, such as you use. Isn't it true that the average bee-keeper uses a wheelbarrow? Hives with Hoffman or self-spacing frames don't require to be handled like eggs. —ED.]

I TRIED on a large scale that plan of preventing increase, p. 90, by *in*cluding the queen with an *ex*cluder so as to let the young queens fight it out. I could stand the sulking if that was all. They would swarm so repeatedly, and get so desperate about it, that nearly all the bees from five or six strong colonies would hang in a single bunch, sometimes nearly all day, and only too often a queen would get out, and then there would be trouble. The queens were not small either. [Since you speak of it, I now recall that, when I tried the same plan, the bees became desperate. They not only sulked, but kept swarming out every day or two. So far as their usefulness for honey was concerned that season, I might just as well have brimstoned them. In handling this matter of swarming it will not do to thwart the bees—that is, once let them get the desire and *then* forestall them. The thing to do is *to keep away the desire*. Control of increase based on any other plan is almost sure to be a failure. "To keep away the desire." Right here Stenog, who is taking down these answers, stops long enough to observe: "There is a great sermon in those words; for what evils have not been hatched by a failure to kill the brood by crushing out that *desire?*" —ED.]

L'APICOLTORE says wax is purest cooled slowly, but of best color when cooled rapidly. It advises slow cooling, scraping off the bottom of the cake, then a second heating, followed by putting the dish in cold water to cool immediately. Is it possible that the second cooling will give it a better color than it had before? [You may put this down as an axiom in the wax business: The longer the wax is kept hot, the darker will be the color when it cools; but it is true that, when it is cooled slowly, impurities settle to the bottom of the receptacle. It is our practice to melt up about 1000 lbs. of wax at a time, and then we let it cool just as slowly as possible. Just before it congeals it is drawn off into cans; after that it is melted but once, and kept in that condition only long enough to bring it to a sheeted condition, and that usually is less than an hour. The trouble with the old methods of making foundation is that they required the old-fashioned dipping-tank, a vessel that had to be deep enough and wide enough to take in a dipping-board. The wax in this tank, or at least some of it, would be kept hot all day; and we found by experiment, several years ago, that keeping hot for three or four hours, or frequent reheating, would darken wax very perceptibly. Wax in the first place, then, should be kept hot only long enough to let impurities settle to the bottom of the receptacle. After that it should be worked into foundation about as soon as it is melted. The Weed new process is worked on this plan. There are no dipping-tanks, and not at any time during the sheeting a larger supply of *melted* wax than two common pails would hold.—ED.]

"THE VETERANS probably do not care for instructions to beginners," says the editor, p. 101. I don't know whether you call me a veteran (been puttering at the business 37 years), but I don't dare to skip instructions to beginners for fear they contain something I don't know. If I skip any thing, it isn't instructions to beginners. [You say you do not dare to skip instructions to beginners. If you do not, very likely there are many others who take the same ground. If so, then it would behoove us to put more matter in, suited for the novice. It is true, that many and many a time a veteran may pick up something from a brother bee-keeper who "supposed that every veteran knew it all the time." Mr. Doolittle, for instance, gives special instructions to beginners; but very often I have picked out from his department a number of ideas new to me. I should like to have veterans as well as beginners express themselves a little more on this question. It will cost no more to make a journal to suit the needs of the masses of bee-keepers than that of the select few; but the editor and publisher must know what the masses really desire. A great many have written so far, "Keep the journal as it is;" but this number, however, represents only a very small per cent of our *silent* subscribers who I am sure have preferences.—ED.]

PICKINGS

FROM OUR NEIGHBORS' FIELDS.

BY "STENOG."

How doth the little busy bees
  Improve these wintry nights?
By telling yarns and cracking jokes,
  And looking at the sights.

AMERICAN BEE JOURNAL.

Dr. Miller has found snakes under and in hives, but he thinks they do no harm.

* * *

F. A. Snell does not want snow over the hives, as it starts brood-rearing too soon. It keeps the bees too warm.

* * *

R. C. Aiken has a proposed experiment to show the comparative yields of comb and extracted honey. It is to be hoped that Mr. A. will settle this vexed question.

Concerning swarming, Frank Coverdale says:

> For years I used 10 and 8 frame hives side by side, and the former swarmed fully as much. I am fast coming to the conclusion that it is not so much in the size of the brood-chamber as how completely it is filled with brood before the opening of the harvest.

* * *

As to the size of hives, C. Davenport has the following to say:

> I prefer and use a hive containing only 8 standard-size frames, and with them I can obtain more honey per frame work, feed, and capital invested considered, than I can by using larger hives. But I have no doubt 10-frame hives, taking a series of years, would give better results to the average bee-keeper, for, as a rule, it requires a much closer attention to details when using 8-frame hives; but many years' experience with hundreds of colonies, and with hives of various sizes, has convinced me that a 10-frame hive is better than a larger one for the production of comb honey in the Northern States.

* * *

On p. 49 Mr. Doolittle answers the question whether imported queens are better than those bred in this country. He takes the ground that the latter are not only as good, but even better. Mr. D. says he is informed that imported queens, unless it is very lately, are "from a promiscuous selection, mostly taken from second and third swarms." However that may be, if importations were to cease entirely there is no doubt that the present high standard of American queens would be continually lowering.

* * *

Concerning the value of bees to fruit, the following should be pasted in the hat of every bee-keeper in the land. It is from H. S. Price, of Livingston Co., Mo.:

> I have the management of the Plunkett Hill Fruit-farm at this place, and I sold, last season, $16.25 of fruit. It should have been that many hundred dollars; but the rain kept the bees in so they could not fertilize the blossoms, so we had only a "drop in the bucket." I was the only one who had any fruit to sell in this section of the country; and if it had not been for my bees I do not think I should have had 16 cents' worth of fruit. I am, as you will see, a firm believer in my bees.

Mr. Price says he will have no bees but the pure Italians, as they are better workers.

* * *

AMERICAN BEE-KEEPER.

Mr. Ben Honnett, of Colorado, says he would rather have one acre of sweet clover than two acres of any other honey-producing plant.

* * *

The editor, Mr. Hill, contributes some interesting notes on Cuba. After speaking of the disappearance of the bellflower and other honey-plants, he says:

> But the light of liberty, which has been obscured since Oct. 29, 1492, is again perceptible on the horizon of this beautiful isle of the sea, and its liberation from the hand of tyranny will open up a field for new enterprise which will not be less important in the bee-keeping world than in other branches of industry there to be developed.

* * *

Replying to Mr. M. W. Shepherd as to the causes of hard times and low prices, Mr. G. M. Doolittle has the following to say, and it seems to me he says it pretty well:

> If prices of sections and honey had kept step together, sections of the same quality as those of the '70's would be selling at $5.00 per 1000 to-day, or section

honey at 6 cts. a pound. And yet with honey having more than one third the advantage over sections, Bro. Shepherd has the gall to hint high prices of sections as the reason for the low prices of honey, or "hard times."

Mr. Doolittle says the average price of honey in the 1870's was 25 cts. per lb., and 1-lb. sections $12.50. Comb honey now averages 10 cents, while the sections have fallen to $3.00, and are greatly superior in quality and workmanship to those made in the '70's. These figures are certainly suggestive.

* * *

An interesting article on Japanese bees is contributed by K. Aoyanagi. He says their history informs them that bees came to Japan from Corea about 1250 years ago. Their main bee is grayish-yellow, and when it gets older it becomes darker. Its queen has a good temper, and they "have no trouble in managing her." Japanese bees never suspend their work and stop brood-rearing during the summer. The writer of the article says he never uses smoke or veil. He says their bees are better tempered than the Italians, but they are sensitive and easily frightened. They are readily robbed by the Italians. The comb made by the Japanese bee is so thin that it will not well stand shipment. The Japanese bees have a better sense of smell than the Italians, as they were first to find stray drops of honey dropped on the ground. For rainy countries like Japan the native bees are better than the Italians, as they do not stop work during a rain. Some Japanese bees were sent to Australia, and the people spoke very highly of them.

* * *

BEE-KEEPERS' REVIEW.

Mr. Taylor says, "There is nothing more valuable about a book or journal than a good index." I'm glad to see my old department appreciated by Mr. Taylor; but it is a fine job to make an index that will enable one to put his finger on a certain item the first time trying.

* * *

L. Kreutzinger has a new entrance-closer. He uses two sheets of perforated zinc, one in front of the other. By moving one strip a little to one side the perforations in the zinc can be made smaller or larger, or closed altogether. Sixty hives an hour can be opened in this way. Mr. Hutchinson calls it "handy and effective."

* * *

E. A. Daggitt is pleased with Taylor's criticisms, and calls for a high literary standard in our journals. Mr. Daggitt says he suffers from "the strange fatality of the compositor making mistakes in putting his writings into print." I see he does. He seldom has an article printed without one mistake. Mr. Daggitt says be has never favored open separators, and fears they are not going to be the panacea for that ill in bee-keeping they were claimed to cure. He says if an opening is good, a separator of wire cloth would be the thing, and yet the latter has been discarded. He seems to favor the non-use of separators, saying:

> It stands to reason that, if closed separators discourage the bees from properly attaching the combs to the sections, the less of them we have the better; and if we have none at all, still better.

It seems as if his fears were founded more on theoretical grounds than practical; for certainly much praise has come from those who have tried the open separators, and their increased sale is phenomenal.

* * *

To get *all* of the wax out of slumgum, I. W. Beckwith, of Wyoming, uses what might be called a very large lemon-squeezer One of the levers is laid horizontally over a tub, its smaller end resting on a sawhorse. A hole, 2x3, is cut in the wide part of the horizontal handle, and this hole is covered with six or eight wires. The melted wax is put into a thick cloth sack, allowing it to drip into the tub as long as it will. The sack is then laid between the jaws, the upper lever is pulled down, and the rest of the wax runs between the wires into the tub. The sack is turned and pressed several times. Mr. B. says the residue shakes out like meal. The bag used is made of a grain-sack.

* * *

C. Davenport begins a series of articles on brood-chambers, covers, and even box hives that he prefers. The hive he prefers as a single-story brood hive is a plain eight-frame one. He make the assertion that "Dovetailed corners add nothing to the convenience or utility of a hive," although he admits that it makes the strongest joint possible. He strongly advises painting hives. Mr. Hutchinson erroneously prints "Southern, Minn.," as Mr. Davenport's address. There is no such post-office as that. It should be Southern Minnesota—that is, the southern part of that State. I mention this so our readers will not waste time by writing to Mr. Davenport. Besides, there is no person of that name.

* * *

E. E. Hasty, who for so long a time bas been the bright evening star of the *Review*, has sunk beneath the horizon of Michigan. He gives his reasons as follows:

> I can't *read up* my journals evenings—have lost hope of being able to do so. The result of this is that whenever a "View" *has to be* made out, the reading first has to be done, all in a pile, and the time for it taken out of the few hours each day when I am at my best. The *net result* is that the number of days it takes to make out a "View" is unreasonably great, and has come to be unendurable.

Mr. Hasty is right. Nothing is more trying to the nerves than selection. I have known women to be unstrung by the labor of selecting a dress pattern. The ones they are compelled to leave cast a shade of regret on the one selected. So in telling what people write about in the journals, a condenser is constantly regretting what he can not reproduce. After a Hasty submergence, however, that star is now seen in the morning, in the constellation Gleanings, shining with its old-time glow.

* * *

THE MODERN FARMER AND BUSY BEE.

Mrs. Lizzie Ireland, of Norway, Kan., seems to have put a quietus on any further discussion of sweet clover being of value for honey and for fodder for stock. She says theirs was sown on very rich ground, and grew six feet high, and was literally covered with bees from June 24 till the end of July. They had half an acre that was sown last spring. It was cut three times, and fed to hogs and calves that were shut up. She further deposeth :

> I just wish some of the cranks that call sweet clover a "weed" could have seen those hogs. They were the very best we ever had on the farm, and it was all on account of sweet clover. They were not just nice to look at, but tasted nice also, being the sweetest pork I ever tasted. We will try cows next summer.

* * *

In the issue for Feb. 1 the editor has a timely article on the necessity of teaching apiculture as a branch of farming at our apicultural colleges and experiment stations. He says it is as completely ignored as if there were no such thing. He says:

> When the matter is presented to those in authority, the excuse is made that there is no money to pay even the board and traveling expenses of a competent man to present the subject, and yet money is found to secure teachers in every other branch of agriculture. Every two years the Legislature of Missouri is asked to make large appropriations for the benefit of the agricultural school, . . . but there is never a hint of any of it being used for the advancement of apiculture. At the present session the Legislature will be asked to make an appropriation of $30,000 to advance horticulture, but there is no thought of any money being used to promote bee-keeping, although the horticulturist is largely dependent on the bees.

GENERAL CORRESPONDENCE

THE EVOLUTION OF THE HONEY-BOX.

The First Section Boxes; 2-lb. Boxes; Tall Sections vs. Square Ones; Sections 3⅝x5 vs. Sections 4x5; A Few Cold Facts in Favor of Plain Sections.

BY J. E. CRANE.

One of the incidents of my childhood was the attempt of my father to secure "box honey." It seemed to be a common subject of conversation how this could be done. I remember well the boxes of those days. Some of them would hold from ten to fifteen pounds of honey, while others held twenty or thirty pounds. Some were made of planed lumber ⅜ in. thick, while others were full ½ inch, and unplaned. I remember my father trying to market such honey, and coming home much disgusted. Evidently a few boxes had overstocked the market, and he brought much of it home with him. Later a piece of glass was fitted into one end of the box to tell when it was full.

The first winter after I began to keep bees, more than thirty years ago, I made up a large lot of boxes nearly 13 inches long by 7 wide and 5 deep, with sides and ends of glass, while a few were half this size, which was as small as it was supposed at that time bees would fill or work in to advantage. In 1869 I secured a large crop of honey in this large-sized glass box, with a little in six and four and even three pound boxes, which were regarded as apicultural curiosities rather than of much practical value. Later on, visiting the New York markets I found honey in boxes about four by six inches square by five deep inside, with two combs running lengthwise of the box. This was believed at that time to be about the limit of profitable reduction of the size of a honey-box; and for some, I believe I may safely say, for many years, was the standard size in that market.

I have spoken of my own experience, for I suppose it was the experience of many bee-keepers of that time, and shows the gradual reduction or change from a large to a small box. Often these two-comb boxes would have one comb fit for market, while the other was so poorly finished that the whole box had to be thrown out. How often in those days I wished I could in some way separate the combs! but in vain.

At last the section, with the edges of sides projecting ⅛ inch beyond the top and bottom, appeared, with a separator to secure straight combs, and it was found possible to secure at least fair crops of honey in two-pound combs that could be glazed after they were filled. This has seemed to me one of the greatest inventions in the production of comb honey. And after a little time the two-pound combs became the standard size, from one end of the country to the other.

But presently some adventurous persons proposed a one pound box or section, as such would sell for two or three cents per pound more than the 2 lb. boxes. Others thought that the loss in quantity would balance the extra price obtained for the one-pounds. To overcome this loss it was proposed to have the 1-lb. boxes or sections built in large broad frames in the brood-chamber, and the size, 4¼x4¼ square, was adopted, because eight of them would just fill a Langstroth frame, and, if of the proper thickness, would weigh an even pound.

So popular have these become that they have practically driven the 2-lb. sections from the market. There is, undoubtedly, quite a loss from the use of these small sections in quantity, as I find many intelligent bee-keepers find the product per colony has diminished, even in locations not overstocked with bees.

A very intelligent bee-keeper told me, some time since, that, in a conversation with Mr. Harbison, of California, who at one time was the largest bee-keeper in this country, if not in the world, said he could not afford to use the 1-lb. sections, even if they did retail at ten cents per pound, while the 2-lb. sections were retailing at fifteen cents, as the smaller quantity secured, more than balanced the lower price of 2-lb. sections. The fact that the many attempts which have been made to use a half or quarter pound section have ended in failure would indicate that a section of less than 4¼x4¼ is likely to prove unprofitable and quite impracticable. I tried it myself some years ago, but have not cared to repeat the experiment. Bees seemed to dislike to build comb and store honey in very small receptacles, or else were unable, when clustered in very small bodies, to secrete wax and build combs rapidly. We have learned by the use of single combs of various thicknesses, the thickness of comb that bees can build to the best advantage, which seems to be somewhere from 1 to 1⅜ inches.

With the difficulty of using sections much smaller than 4¼x4¼ there has been a desire to change the form by making the section narrower and taller. Such, it is claimed, are more artistic in form, and appear to the buyer to contain more honey than the square section. If this were all it is doubtful if such a change would pay; but there may be other and more important reasons.

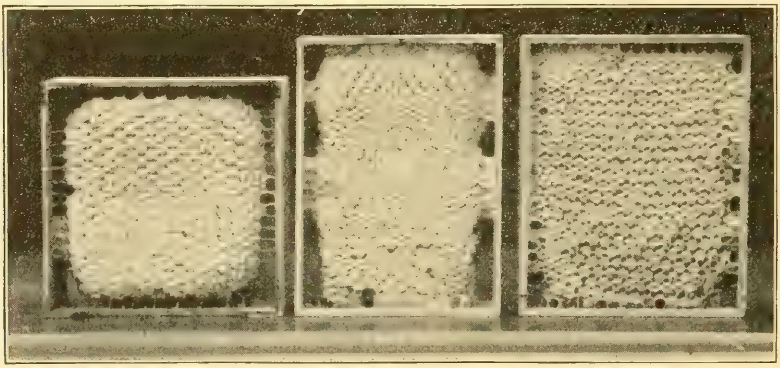
While passing through the Seventh St. market, in the city of Washington, some time ago, I saw a lot of honey for sale, in plain sections 3⅝x5x1½. I noticed it more closely as I did not remember to have seen honey put up in this size of section before, and had thought seriously of trying this size myself in place of the 4¼x4¼ I now use. I was much disappointed in the appearance of the honey, for, although it seemed evident it had been made in a section of country where there was a good flow of honey, yet the combs were poorly built out, even with the advantage of a fence.

I went to look at it again the next morning, and finally bought an average of the lot, to have it photographed, and it is the middle one in the plate I send with this. I saw another lot of honey in the same market in the same style of box, but no better. Had the foundation been cut too narrow, or were the sections too narrow to suit the bees? or was it bad management on the part of the bee-keeper. It may have been any one of these; but I was inclined to believe that the width, 3⅝, was too narrow to suit the bees.

A little later I was in the New York market; and although I must have seen many tons of honey in this size of section, and some even of less width, stacked up with glass fronts, I do not remember to have seen more than a little that would average any better—even the face combs of the cases; but I saw some in sections 4x4½ and 3⅞x5 that would average decidedly better. Some of the 4¼x4¼ were finished better.

While in Washington I saw Mr. Danzenbaker's honey, of which I had heard so much, and with his permission I selected an average section, or tried to do so. I also tried to get an average 4¼x4¼ section as they appeared in that market, and had them photographed together. Which do you like better? While in W. I also saw honey in the 4x5 section that was produced by some one, I don't know who, that looked quite as well as Danzenbaker's honey—I thought a little better—but I did not tell him so. Since my return home I have received a photo of some produced here in New England—I have now forgotten by whom—in this same style of section (4x5), that looks about as well as either. I believe all were produced in the Danzenbaker hive, as the sections are of the same size.

Does a slight difference in the form or shape of the section influence bees in filling it with comb and honey? If so, what is the best shape and size for a section that will weigh a pound to secure the best results? My own experience teaches that bees will finish sections 1⅞ thick much quicker and better than those ⅛ inch thicker. Will ¼ or ⅜ put on or taken off the edge of a section make much difference? From what I saw in the markets I am inclined to think it does—i. e., when it is already as small as the bees will work in readily or to advantage.



THE COMPARATIVE FILLING OF THE THREE SIZES.

A very intelligent bee-keeper told me recently that he had tried the 4¼x4¼ by the side of the 4x5 sections on the same hives, and the bees would enter and fill and finish the 4x5 sections first. This is "important if true," as the newspapers sometimes say. We have all observed, doubtless, how much faster bees will build comb downward than sidewise. Near the close of the A B C of Bee Culture is a plate, No. 24, showing how bees build natural combs. Instead of one long comb extending from near one end to the other on the under side of the top-bar, as we should naturally expect, we find several small combs, longer up and down than sidewise, almost the exact proportion of a 4x5 section. How much the instincts of bees are modified by the use of foundation I can not say.

Another advantage of this size of section is that it has a larger comb surface, and will weigh a full pound, while not as thick by ⅛ inch as the 4¼x4¼ section weighing the same, and this may be its strong point.

Will the evolution of the honey-box bring the plain section into general use? I believe it will. One dealer in Washington told me he would pay three cents per pound more for the 4x5 plain-section honey than for the old-style sections. Indeed, I was offered two cents per pound more, for 5000 lbs. of clover honey, to be delivered next fall, than I have been receiving of late for my best grade of honey, if put in plain 4x5 sections. In New York I inquired of Mr. Segelken for his plain-section honey, that I might compare it with that in old-style sections. He said he had very little left in plain sections, as such lots were picked up first by retail dealers, who preferred them to the old-style sections. I found the same true in Albany, N. Y., where I stopped to look over the honey. As these retail dealers are not in the supply business I thought their opinions worth recording.

I believe the honey-section of the future is likely to be tall rather than square, and thin rather than thick, and plain rather than old-style, as such seems to best suit the instincts of the bees and the demands of the honey-trade.

Middlebury, Vt.

[There is, perhaps, one factor referring to the 3⅝x5 and 4x5 size of section that you have not taken into consideration. As you will recall from sections you saw while here, the cross-cleat, or that portion of the fence bearing against the uprights of the section, has a good deal to do with the filling of the section itself. All supers sent out last season, taking sections 3⅝x5, had cleats on the fences *½ inch* wide. On the other hand, all supers taking the 4x5 had cleats on the fences only *¼ inch*. The width of the cleats alone might make all the difference between the filling of the two classes of boxes. This difference between the wide and narrow cleats was so marked that we have this year decided, as you may remember, to make cleats on *all* our fences narrow instead of wide, as last season.

But aside from the matter of width of cleats to fences, it is possible that the 4x5 section has some advantages distinctly its own. Read R. C. Aikin's article, just following.

As we make supers to take both kinds of sections, 4x5 and 3⅝x5, it does not make a picayune's difference to us which we sell. They are both supposed to hold a pound; but the larger one is only 1⅜ inches thick while the other is 1½ inches.

I am not at all surprised that you found a decided demand for honey in the plain sections in the markets you visited, and that you found that such honey would bring a higher price. Some of my friends have thought that I was over-enthusiastic, and made stronger claims for the sections a year ago than subsequent developments would warrant. Dear me! I was not prophesying, but telling only what bee-keepers of long experience had told me. It is no little satisfaction for me now to see those same statements verified by so careful and conscientious an observer as yourself.

It is no little regret to me that we are unable (and it would be unwise if we could) to publish *all* of the unsolicited testimonials in favor of plain sections. The evidence we have already given ought to be sufficient. But there are always some who will be doubting Thomases, even then, for "none are so blind as those who will not see."

Here is the article from R. C. Aikin, that I have taken from the *Progressive Bee-keeper*. With what is said above by Mr. Crane it comes in very nicely.—Ed.]

TALL VS. SQUARE SECTIONS.

Why the Former are Better Filled out.

BY R. C. AIKIN.

[I have known that the tall sections seemed, apparently at least, to be filled out a little better than the square ones, under the same conditions; but I never knew all the reasons *why*. Friend Aikin has offered the best explanation of any thing I have seen. The italics are mine.—Ed.]

I favor a section 4x5 inches, and to stand on end, or 5 inches deep. Such a section will finish nicer than a shallower one. About 20 years ago I used a section 5x6, made of four pieces, the sides about 1¾ wide, and the top and bottom bars enough narrower to make the bee-entrances. Since those days I have had more than 100,000 4¼x4¼ sections filled, and never were the latter as nicely finished on the average as were the former. The reason, however, was not all in the size, but was largely due to the construction of the section. Those 5x6 sections were sawed out and of four pieces (to be nailed), the top and bottom the same width their entire length, or the same in width as the thickness of the comb in the section. The more modern one-piece sections have the bee-entrances scored out so tops and bottoms are narrow in the middle part, but round out to the full width of the sides when within ½ or ¾ of an inch of the corner. The top-bar that is just as wide as the thickness of the finished comb that is attached to it is much easier for the bees to finish to. *Just look at any modern one-piece section of honey, and see how the finish is worked out even with the narrow part of the section top, but dubbed or rounded off when it comes to the wide part*, and you will at once comprehend that the top narrow its entire length will finish the nicer of the two.

Before the adoption of the 1-lb. section by bee-keepers I used many larger sizes, and I believe I know that the larger ones made as before described finished nicer than the 1-lb. size. In addition to the better finish caused by the different construction of the top and bottom bars, the proportionate depth has something to do with it. The bees in building a comb are inclined to stop the downward progress before attaching to the bottom-bars, leaving a space or passage between the bar and the comb. They evidently do this instinctively. Look into any box hive, and you never find the combs attached to the hive bottom unless the combs have settled after construction, causing them to rest on the bottom, when of course they would fasten, as they do all surfaces that touch. Again, look into any brood-chamber in which the combs have never been tiered up above another set, and but few are attached to the bottom-bars. Not only are they not attached to the bottoms, but almost invariably are the corners rounded more or less. Now apply this to sections. Suppose a section were only two inches deep, do you not at once comprehend that, if a space is left between the bottom-bar and the comb, and the corners rounded, there could be but little more than one inch of the comb edge attached to the uprights? *Now increase the depth of the section, and every bit of the increased depth will be attached. The deeper the section, then, the greater the proportion of the comb that is attached to the wood.* This is another reason why I want my section deeper.

I think I hear some one—may be Doolittle will do it—say that the deeper section will not be finished as quickly as the shallow one. Let us reason a little on that. Any one who has ever observed comb-building knows that combs *always* progress downward *much* faster than sidewise. Hive a swarm on starters in an L. frame, and, if a small swarm, a comb will be started down, and reach the bottom-bar about in the proportion of 5 or 6 inches wide to 8 in depth. *The universal rule is that in comb-building the downward progress exceeds the sidewise in a proportion of about 3 to 2.*

If, then, comb-construction goes on in this way, a section that is as wide as deep will be finished down the center before it is at the outer edges. This will be made plain by looking at combs in all stages of progress.

Has not every apiarist who has used the L. frame, or any long and shallow one, noticed how slow were the ends and lower corners in being filled and finished? The same thing can be seen in the working of full sheets of foundation in either brood frames or sections, the work progressing much in the form of one's hand when suspended with the fingers downward.

It is quite evident, then, that a section, or brood-frame either, in which the width and depth are in proportion of 2 to 3, will be filled with comb and finished quicker than when the width is equal to or greater than the depth; the greater the width in proportion, the more uneven the work. So true is this that it becomes a source of much aggravation in getting combs well built out to the ends of L. frames, especially with weak or moderate-strength colonies in full-sized chambers. I say this after having used brood-frames ranging in size from 4¼ deep and 17 long (the L. frame being the longest I have used) to 11 in width and 14 deep, and many intermediate sizes. Also sections 5¼x6¼, 5x6, 4x5, and 4¼x4¼. Some of these were used the short way up and down.

Because of this feature of comb-building, i. e., that they build downward more rapidly than sidewise, a section or frame slightly deeper than wide will be finished as promptly as one of same capacity as wide or wider than deep. More than this, the deep and narrow section or frame will be better attached and finished at the sides. A section 4¼x4¼ with the comb attached to the top and both sides clear down, gives, in round numbers, 12¾ inches of attachment, while a 4x5 similarly attached to 3 sides, gives an attachment of 14 inches. A 4¼x4¼ section equals 18$\frac{1}{16}$ square inches, and 4x5 equals 20 square inches. Thus the 4¼x4¼ section has nearly 2 square inches less comb than the 4x5, and 1¼ inches less attachment, and ¼ inch more detached comb, premising, of course, that neither is attached to the bottom.

Considering, then, the better attachment and better finish of comb, I prefer a 4x5 section. Having a section so deep, and the super 4 sections long, I can have my brood-chamber only 16 inches long, and that is why in a former article I spoke of this length of hive. A close-fitting closed-end frame 5x16, and a 4x5 section, will both work in the *same* chamber; thus a super and brood-chamber part may be identical and used for either, save in the inside furniture.

* * *

PLAIN SECTIONS A SUCCESS.

Better Filling and Higher Prices.

BY I. A. WOOLL.

I have been reading with much interest the articles pro and con relative to the new fence and plain sections as sent out by The A. I. Root Co last season and have concluded to give our experience and opinion relative to them.

We were among the unfortunate ones who were a little too late in placing their orders for supplies last season, and, consequently, we did not get our first installment of the new fixtures until late in June, and at a time when all our hives were provided with the old-style sections; but as fast as they were filled we replaced them with the new plain sections and fence separators. These were put on too late to get a fair trial, for our white-honey season was then nearly over, and we had no buckwheat or other fall honey on account of a drouth that prevailed in our particular locality at that season. However, we received four or five well-filled cases of basswood honey in the new sections; and to say that they were nice would be putting it lightly. It was a real pleasure to open those crates of honey and note the difference between them and the old-style section in regard to freedom from propolis and consequent ease of cleaning. With the old-style open-top section we noticed that the bees always stuck a wad of glue at the point where the slot came in contact with the separator, and this was always hard to remove, because it was so near the honey in a position hard to get at without injuring the honey with any scraping-tool we might use; and we generally found it necessary to use the fingers in removing it. But, presto! when the fence was loosened from the row of plain sections we found but little propolis adhering to the section, or separator either, and one motion with a knife would clean a whole side of the section clean; and, indeed, it would pass as clean sections in many places with any cleaning at all; and we noticed this—that the aggregate of propolis used in the entire crate was fully 50 per cent less than that in the old-style section case with plain separators.

Now, if the time of our little friends at the season of gathering honey is worth any thing at all, it seems to me that here is a saving in that the labor employed in gathering the propolis could be used in collecting more of the coveted sweets.

Well, we had two 24 section crates of the tall sections, 3⅝x5x1½ plain, which we took to the grocer, thinking we had something a little nicer than had ever been taken into our town. We took a 12-lb. case in and asked what they could pay for nice white honey. "Well," he said, "it is worth 9 cts.; but we are not in need of any just now." I told him I should like to show him what I had, and began setting them out; and he and the few customers in the store began gathering around and uttering exclamations of surprise at the beauty and perfectly finished appearance of the new sections.

"How much have you like this?" said he.

"Four cases," I said.

"Well," said he, "I guess I will take what you have at 9 cts. per lb."

I said I should have to have 10 cts. for such nice honey as that this year.

"Well," he said, "bring it in; and if it is all like this I will pay you 10 cts."

When we went out to get the other three cases another grocer had got his eye on the honey through the glass cases, and wanted to know if it was sold. I said it was.

"What do you get for it?" I told him.

"Have you any more like it?" he asked.

I explained that this was simply a trial of this style of honey-package, and that it was all I had this season. He tried to get me to let him have that honey at 10 cts., or a part of it; but, of course, I had to refuse, for I knew the other man would take it all, which he did.

Well, later we sold a quantity of honey to The A. I. Root Co., and by their direction shipped it to the Columbus Commission and Storage Co., Columbus, Ohio. When packing this honey we put in one case of the new plain sections, 4¼x4¼, and marked them so on purpose to call the attention of the dealer to it, and with the result as given in Sept. 15th GLEANINGS.

As to the relative value of the two cases (old and new) for the greatest yield of weight of comb honey, we shall require another season's trial to decide definitely; but we are of the opinion that the easy access from one section to another will increase the production.

On the whole we are thinking quite strongly of putting the new fixtures in all our cases the coming season, with the possible exception of one or two for comparison.

Elsie, Mich., Jan. 7.

* * *

THE FENCE-SEPARATOR SYSTEM.

Fence Supers Entered Sooner.

BY M. A. GILL.

Perhaps a few words giving my experience with the plain section and fence separator would be appreciated by a few of the readers of GLEANINGS.

First, I will say I was much interested in the fence-separator system when it first came up for discussion, and was amused at some of the arguments that came out setting forth that the system would not work; and when we ordered 20,000 no-beeway sections and 700 supers with fence separators, several of the wise ones said the same as others had said in the journals, that it was impossible for loaded bees to pass through the spaces.

I had spent too much time during the previous twenty years in studying, not to know that the spaces were ample, and that the system was practicable, else I should not have ordered so many to start with. I soon saw that, to raise honey by this system, it was necessary to have hives level. This has been my hobby, as I never use separators, and would not now if I could not have the fence

One of the system's faults is that, if any mishap happens to one section, there are generally three sections spoiled; for if a starter breaks down, the bees will build through the fence on each side and spoil two more. So I said there are two good features, for any thing that will make careless people set their hives level, and securely fasten all starters, is a good thing.

I will say that, while casing 400 cases about equally divided between the no-beeway and the old style we didn't have enough crooked or broken honey for table use for two families.

The past season in Western Colorado was a poor one to fairly show up any system for comb honey. But I could readily see that the bees would occupy the supers much sooner than with the old style, especially if separators were used, and that the outside sections were, many times, finished first, which would reduce the unfinished-section business to the minimum.

With regard to the shipping-cases needing separators, my experience was that they would stand shipping better than the old style, as the honey was *always* attached to the bottom of the section.

While speaking of shipping-cases I think we should have a 24-lb. case for the no-beeway sections; for when you sell a man a regular 24-lb. case, and tell him there is 32 lbs. in it, he will say that can not be, for it's full with only 24 lbs. in it. It at least makes an explanation necessary, and you know the average grocer who has sold a few cases of honey can tell you more about honey than you ever dreamed of;

and if he takes your 32 lbs. of honey in an old-style 24-lb. case he will want the extra 8 lbs. at a discount.

I could say much more in favor of the fence-separator system for comb honey, but will only add this: In my opinion the system has come to stay, for, in every manipulation, from start to finish, it is preferable to the old style.

In this dry climate the shrinkage is more than the wedge takes up. But I prefer to wedge on both sides with upright wedges, at each end and middle. This gives the Pettit system, or loafing-ground, to *my* satisfaction at least.

I like your changes for 1899 in the fences, and the system now seems nearly perfect. I have been told that I would use any thing that the Roots would make, and call it all right anyway. This I deny; for you have manufactured two things, and sent them out to the trade, that I would not use. One was the most provoking thing I ever saw—your Clark cold-blast smoker. The other is or was the most comical thing I ever saw, and that is your little strainer sent out with extractors. I remember poking one of them into the bung of a barrel in Kentucky, and filling it with thick yellow poplar (tulip) honey. That was ten years ago, and I don't know whether it has all run out yet or not. You used to send them out that would hold about two pounds. I heard a man say he filled one of them (dry) and hung it up in his cellar, and it didn't even leak for two days. I will say, however, that the honey was alfalfa that would weigh close to 13 lbs. per gallon.

Boulder, Colo., Feb. 6.

HIGHER PRICES FOR PLAIN-SECTION HONEY.

I had your plain sections in use with fences, and must say that I am pleased with them, particularly the 3⅝ x 5 x 1½ sections. They were very nice, better filled than the old style, and made a great deal better show—so much so that they brought me a better price, and they sell much quicker. I am so well pleased that I will use none but plain sections this season, and have sent my order for such.

Alphin, Va., Feb. 6. P. I. HUFFMAN.

ECHOES FROM THE CALIFORNIA STATE BEE-KEEPERS' ASSOCIATION.

Ninth Annual Session, Jan. 11 and 12.

BY J. H. MARTIN.

Although there was an encouraging rain of two inches the day previous to the meeting, there was a very light attendance. Even some quite extensive bee-keepers who live within easy distance, or even in the city, were conspicuous by their absence.

President C. A. Hatch, at last accounts, was feeding four coal-stoves for comfort in Wisconsin, and, lacking some 2000 miles of being available, Mr. C. H. Clayton was elected president *pro tem.* The treasurer, who some weeks ago was reported as lost in the wilds of Oregon, and for whom there was some solicitude, turned up in due time. Secretary McIntyre felt much relieved when the man and the funds — especially the latter—came in sight.

The first session was held at 2 P. M., and the first paper was by Mr. Geo. W. Brodbeck, on "The Bee-keeper of the Future."

The secretary read a paper sent in by Mr. W. A. Pryal, of Oakland; subject, "The Gigantic Honey-producer, the Eucalyptus."

This paper brought out a lengthy discussion, and it was agreed that, among the many species now in California, *Eucalyptus robusta* was the species eminently adapted to the needs of the bee-keeper. The bloom is the most profuse from November until April, and just when needed to help the bees through the winter.

Mr. Mendleson led quite a lengthy discussion upon feeding. He had fed over a ton of sweets. He preferred to reduce the number of combs, and feed so as to crowd the queen to a small space for breeding, otherwise quite an amount of the stores would be used in breeding a useless number of bees.

The meeting on the 12th was, during the morning session, devoted to foul-brood laws and the treatment of the disease.

Mr. McNay, of Portage, Wis., was in attendance, and gave an interesting talk upon methods of selling honey, the proper package to use, and, above all, packages free from rust and dirt.

He finds that extracted honey is gaining in sales, and for table use. Some of his customers called for basswood honey solidly candied. He found that these salesmen had a stand in a conspicuous place in their store window; the barrel of honey was placed thereon, the hoops cut off, the staves removed, and the honey was chipped off in chunks in size to suit the buyer.

Mr. Lambkin, of New York, was in attendance, and gave a few ideas respecting sections and fences. He said they had been in use in his portion of the State for 20 years; he was strongly in favor of their use.

Mr. Wilkin addressed the meeting upon the subject of co-operation.

Mr. Wilkin was elected president for the coming year.

Mr. J. F. McIntyre was re-elected secretary. The present treasurer continued.

There was an estimate that fully 50 per cent of the bees in Southern California had died during the past dry season.

It was with regret that we learned of the death of J. P. Israel (Skylark). He was one of the veteran bee-keepers of California.

Samples of honey were on exhibition from Northern California, Oregon, and Washington.

Mr. Farr, who has apiaries in Acton, Cal., was present. Mr. Farr is one of those bee-keepers who migrate during a dry season. His migration this past season took him to Utah. Mr. Farr was quite reticent on the subject; but we learned from other sources that the cost of moving a carload of bees to Utah was $400, and Mr. Farr produced honey enough to sell for $2400. This proved to be a good move, even if it was a long one.

Should the coming season prove a dry one there will be many more long moves. Some bee-keepers are looking over into Inyo Co., and others into Arizona. We have an abiding faith, however, that it will rain to the required amount.

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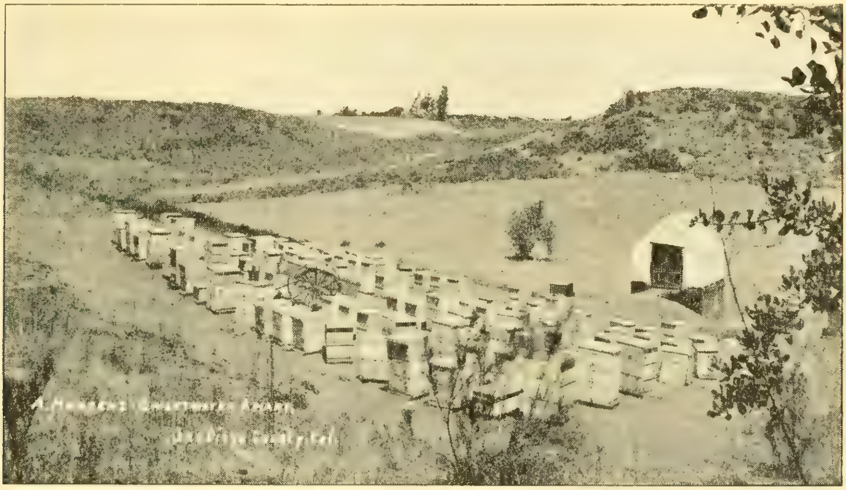
SWEETWATER APIARY.

Honey Flora in the Region of National City, Cal.; an Ideal Extracting-house; Staple-spaced Frames a Success; the Root Shipping-cases; a Suggestion.

BY ARTHUR HANSEN.

Mr. E. R. Root:—Pursuant to your request I hereby give a brief sketch of my Sweetwater Apiary. The site is just over the hill east from "Palm Terrace," the *bon ton* of National City, inside its corporate lines, between the Sweetwater River bottom and famous Paradise Valley, about three miles from the Bay of San Diego. Its resources are: First, pollen from the willows about Christmas; a warm January gives plenty of nectar from this source; and from the blue-gum (eucalyptus) I have had considerable brood by Feb. 1. Orange-bloom is best here in February, March, and April. The bloom of 1897 was the most profuse, with largest yield of nectar. My bees worked so strong on the old orchards of Paradise Valley that people from there called my attention to the wide path they maintained. Wild alfalfa blooms at the same time, and is very good when it does yield. I noticed best yield on the coast in 1893. It springs up where a fire has run over land, and loves south and west exposure; wild buckwheat is the same in this respect, which fact Rambler and I noticed in 1892. White sage and wild buckwheat bloom in May, June, and July, followed up by goldenrod and tarweed. The latter is hard on comb-honey producers. Some sweet clover grows along the river, but I do not know much about its yield. In 1897 we had our first material aid from the sugar-gum, of which so many line the streets of National City. Bloom is from June on.

One of the photographs shows the two-story honey-house. It is 10x10, matched lumber, two sections to each side, bolted together, high enough to stand up in, good floor, 10-oz. duck tent over a frame on top, frame in sections, building painted with oil and ocher. The two spring doors have double-acting spring hinges, so the cart pushes open either way. Upper story contains four-frame Stanley reversible extractor, and R. Wilkin's uncapping-box, with a Wilkin strainer between the two, and a workbench. The strainer empties automatically through a tin tube into the tank below, which stands high enough to admit a 5-gallon can under the faucet, capacity 1200 lbs. The cart takes combs crosswise; space on bottom for loose pieces of comb, two sliding covers on top; sides can be removed so that the platform can be used to convey hives to the wagon during moving. The sun extractor is California style, with burlap frame for catching the wax, and compartment below for the honey. I think it leaves more dross than a Doolittle.



I started in with eight-frame hives, running for comb honey, in 1889. In changing over to extracting I got nine-frame hives; then I had some 11-frame made at the mill. These I run mostly three-story, the queen ranging over all. These give me the best results. After getting a Barnes saw I settled on 10-frame hives, parts interchangeable; handhold cleats form the rabbets and help to tie the sides, which fit into rabbeted ends. A 1½-inch hole in each end, protected by a galvanized flume gate, with slide, affords ventilation at pleasure.

When starting in the bee business there were no Root goods to be had on this coast, and for comb honey a frame was put on the market enough shorter than the Langstroth to do without the section-holders. I use this frame with No. 9 double-pointed tacks, 4 to each frame, at opposite sides, half way down the end-bar, and on the top-bar just inside the shoulder or rebate.

The top-bar is $1\frac{1}{8}$x$\frac{5}{8}$, flat, with saw-kerf for foundation, resting on tin rabbet. End-bar is $1\frac{1}{8}$x$\frac{5}{16}$, and the bottom-bar is $\frac{3}{4}$x$\frac{1}{4}$. Spacing is $1\frac{5}{16}$. Frames of this size are now used to some extent in the county, and I have been requested, before this, to give a description of the same.

For Dr. Miller's benefit I would say that I have used the stapling device since 1892, with good results, in the brood-chamber.

In my travels through Oregon, Washington, and Idaho last summer I handled a great many Hoffman self-spacing frames, and I am convinced now that the amount of propolis used in my section of Southern California is not sufficient to offset the advantages gained by their use, if they are Root's or any other first-class make, in pine. Some Washington dealers use cedar, but it is too soft to stand the wear. V edges dent in and split off.

My hives are in groups of five, with the corner hives at an angle, and alley for cart at alternate rows, with the hives facing out.

The tree in the corner is a mountain mahogany, and the brush is a scrub pine. A lone elder-tree stands out in the stubble-field back of the honey-house. The dark spots on the side-hills are cactus, chollas, and brush, with beautiful homes in the distance.

In the other photo I am introducing the first Italian queen of a batch of 16. Her majesty is under the wire cage on hatching brood. It was in the fall of 1897, and I am making some increase besides superseding undesirable queens. One full and one empty mailing-cage and a wire cage show in front of the hive. A Corneil smoker stands watch, and the brush in the pail of water is made out of old rope. The short putty-knife on top of the upper story is *my* hobby for an indispensable tool.

The residence and orange-grove over the hill is that of Mr. D. K. Horton, of Boston, on Palm Terrace.

All new hives are painted a straw color, with ocher and white lead. I use queen-excluders under drone comb; but Peter Lux, of Encinitas, Cal., advanced an idea that I want to try another season; namely, to get the combs built out wider by continual spacing until the cells are too deep for the queen to lay in. Has any one else tried this? I aim to keep down increase by making very liberal use of full sheets of foundation in the brood-chamber, using the brood in upper stories, in lighter colonies, and making nuclei to care for extra queens. Last year was a hard one; but Mr. Herbert Veall, who runs the apiary, writes me that he hopes to pull through the 95 stands that he reduced the apiary to in the summer. Mr. Veall expects to carry out my plan of moving to the mountains for a second crop, if the season warrants it this year.

Just a word in regard to comb-honey shipping, from a dealer's standpoint. While in Spokane I saw some Yakima comb honey come in, crated as per directions in Root's catalog. In addition a cleat was nailed across the ends of each cover, thereby preventing splitting in opening up, and adding a certain spring to each case while in transit. I think supply-dealers ought to add this cleat, and California comb-honey producers and shippers should follow Root's directions, as their product (that of the California honey-producers) is losing ground up here on account of the breaking-down.

Wallace, Ida., Jan., 1899.

[Every thing about this apiary betokens neatness, and a general system calculated to produce the largest results with the least labor. The comb-cart and the extracting-house, the upper story of which is used for extracting and the lower part for storage, are evidences of these. Where the building can be on the edge of a side-hill, allowing the storage-tank to be under the extractor, the arrangement is as nearly ideal as any thing can be.

Mr. Hansen does not say any thing about his method of introducing, but I should judge by the engraving that he uses something very nearly like the Peet method — a plan whereby the queen is caged right on the comb, her liberation being effected by the bees gnawing under the cage and letting her out themselves.

The shipping-case that we make has been constructed after consulting bee-keepers and commission men alike. If there is further improvement we can make on it without increasing its cost too much we should be glad to incorporate in. Cleating the covers, as has been spoken of, might be objectionable in some markets, and at the same time increase the cost of the cases. If there are others of our subscribers who think it would be an improvement, we may think best to adopt it.—Ed.

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CUBAN HONEY AS COMPETITOR OF AMERICAN HONEY.

The Effects of Glucose on Honey Markets; Writing to Members of Congress in the Interest of a National Pure-food Law; how the Dairymen Fought Oleomargarine; a Valuable Article.

BY C. DAVENPORT.

In Gleanings for Dec. 15 a subject is touched upon that is of vital interest to all producers of honey in the United States. I refer to honey from Cuba. If extracted honey can be produced there for two cents per pound which is superior to that from white clover (and I can see no reason to doubt it), it is probably true that there is no reason why comb honey of the same quality can not be produced proportionally cheap; and if the import duty is removed it can be laid down in any eastern city by boat at a very low cost compared to what freight by rail would be. It will be noticed that I have referred to Cuban honey as being superior to white-clover honey, and this will hold true in a large way if its only difference consists in having a milder flavor, for many think that from clover has almost too strong a taste; and, aside from its quality, from what has been said in regard to the matter it is to be inferred that Cuba is capable of producing immense quantities. In fact, as I understand it, California would be out-classed in this respect; for while that State produces immense crops it is also, like most if not all other States, subject to failure; and I believe a failure of the honey crop in Cuba is something unknown. But if the honey from another area, equal to California in productiveness, is thrown on the markets of the United States it does not require much imagination to see what an effect it would have on prices. As for our having patriotism enough to receive this Cuban honey, this is absurd; and in my opinion it is not patriotism, but treason; for patriotism is, as it were, if I am right, the welfare of one's country and its people; and if any are troubled with an excess of it in the former respect, let them reflect that this country is, and probably will be for many generations, heavily taxed on this account. But, aside from all this, we who depend entirely or mainly upon bees for our living know that, if prices for our product go much lower than they have been the last few years, the bees will have to be given up, and our attention given to some other pursuit. The prices of honey have of late years been steadily declining; and while there are undoubtedly a number of reasons for this I beleive one of the main ones is adulteration; and this is becoming (in fact, already is) a great curse to this country—not only in regard to a good many kinds of food, but a great many other products as well. The one article of glucose alone is doing great harm in a financial way to those engaged in our pursuit; for there is, I think, more of this produced annually, and sold mainly for food purposes, than the entire annual product of honey. And, aside from the money loss to bee-keepers and others, this stuff, I think, does much harm in other ways; for many who consume much of it may ruin their health; for, while not necessarily injurious itself, I understand that acids that are used in its manufacture remain in it in sufficient quantities to make it so in such grades as are mainly used for commercial purposes. If we can get the right kind of national legislation in regard to pure food it will in a financial way largely, perhaps, more than offset the effect of any amount of honey that can be produced in Cuba. The Brosius pure-food bill, or any other of like nature that may in the future be brought up, should receive the support of all bee-keepers. Let the Member of Congress from your district know that you are interested in this. Write him to this effect. A few words only are necessary; for instance, something like this:

> *Dear Sir*:—I and others here are much interested in the pure-food bill, and we hope you will do what you can to have it passed.
>
> Yours truly, ____ ____ ____

A postal card will do. The only address necessary is his name and the words "Member of Congress, Washington, D. C." Better than this, get up a petition—something similar to this will do:

> *Dear Sir*:—Myself, and those who sign this, trust you will do what you can to have the pure-food bill become a law.
>
> Yours truly,
> C. D.

If it is written and signed with a lead-pencil it will answer, and three-fourths or more of the people in almost any community would be glad to get a chance to sign a petition of this nature, and that petitions or even individual expressions from their constituents have great influence with Members of Congress. There is no question that this is as it should be, for they are sent to Congress by the people to work and make such laws as will be of the most benefit to the people as a whole.

As an instance in support of this I might mention some facts in regard to the great injury that threatened the dairy interests through oleomargarine. Indeed, through it much injury had already been done when dairymen arose, and, through letters and petitions to Congress, they succeeded in getting a law passed which did not prohibit the sale or manufacture of oleomargarine, but forced it to be labeled and sold for what it is, and this was sufficient; and the same would be true in regard to glucose if any food product that contained it had to be plainly labeled so that people would know what they are buying and eating; and although comb honey can not be adulterated, the adulteration of extracted does in an indirect way greatly injure and affect the sale and price of comb honey. One of the many ways in which it does this is because it lowers the price of extracted, and this causes a larger amount of comb honey to be produced than would otherwise be the case. This naturally has a tendency to lower the price of comb; and much of the adulterated stuff sold for honey is so vile that but a small proportion is sold to what there would be if it were pure. This causes what I think might be called under-consumption, and helps to lower the price of both kinds.

No bee-keeper should lack interest in this matter because he has a home market for his product; for in a short time bee-keepers in his locality may increase, and his home market become glutted to such an extent that he will be forced to depend on the general market for the sale of his crop. It takes but a short time to oversupply any rural home demand, when others near get started in the business. Besides, city prices as a rule have considerable influence with prices that can be obtained at or near home.

I have now very imperfectly expressed what I should like to say on this subject; but perhaps it will cause others more able to lay the matter before bee-keepers in such a way that it will receive some of the attention that its great importance warrants.

Southern Minn.

[It is impossible at this time to form any idea of the probable effect of Cuban honey on the American markets. If the present duty should be removed it is easy to see that it might be a serious competitor, because the Cuban bellflower honey would doubtless compete in flavor and color with any sweet clover, and might in some markets be taken in preference, especially if it were sold for less money, as it could be with the duty removed; but for the present, at least, I have no fear along that score. So far Uncle Sam has made no move to annex Cuba; and unless he does, there is no reason why the duty should not remain on Cuban honey; and even if annexation should take place it does not necessarily follow that Cuban honey will come here free.

But glucose—yes, that is the real competitor we now have. It is a competitor because it enters so largely into many of the so-called strained-honey samples purporting to be pure stuff. Sometimes I feel almost discouraged while in the markets in the different cities, when I call for strained or extracted honey. If I call for extracted, the clerks hardly know what I mean; but if I ask for strained — oh, yes! they have "plenty of it." In nearly all the large stores I have been in, where such goods have been on sale, I seldom find pure honey put up; and it does not take a chemist, either, to decide that the goods are adulterated—almost pure glucose. Let those of our friends who fear we are making too much noise on the subject of adulteration go into some of the large grocery and department stores in the various cities. Let them ask for "strained honey," and then see what they get. If they do not find exactly what I have found, glucosed honey, in five cases out of ten, then I shall be surprised. This stuff is usually put up in bottles and tumblers, and can be retailed in single packages at a good deal less than the average bee-keeper can afford to wholesale pure goods in large lots. As friend Davenport says, it is these goods that are the real competitor of pure extracted honey. In the first place, they cut down the price of pure honey; and in the second place they disgust consumers with *all* honey put up in liquid form, whether adulterated or pure. It is like burning a candle at both ends; and unless we can do something about it pretty soon, the average bee-keeper, I am afraid, will find there is little profit in producing extracted honey. As it is, no one complains that his profits are *too* large.

Glucose is cheap because it is used so extensively in the liquor business. Glucose and poor beer go naturally together, and the twain are the enemies of the honey business.—ED.]

TWO-STORY EIGHT-FRAME LANGSTROTH VS. TEN-FRAME QUINBY.

Arguments in Favor of the Former.

BY DR. C. C. MILLER.

I have always felt just a little anxiety as to whether giving room with Langstroth frames in two stories would answer precisely the same purpose as the same amount of room in one story with larger frames. Mr. Dadant's silence on that point has been somewhat marked, and I've been watching for a long time for some expression from him upon the subject. On page 871 he puts himself squarely on record as preferring the one-story with the large frames.

I have some fear that he is right, mixed with a strong desire to believe him wrong. That desire comes from the fact that it is so much more convenient and easy to have the smaller 8-frame hive when it comes to handling, especially for one who takes his bees back and forth to an out-apiary or puts them in cellar. So, by way of whistling to keep up my courage, I'll attempt some reply.

The footnote has replied to the argument that dummies belong only to the large hives. In hives with frames at fixed distances, such as all my newer hives are, the dummy is not only a convenience but a necessity.

As shown by the editor's footnote, the two-story can be limited to exactly the same capacity as the one-story with larger frames. But I'm not sure the editor has any great strength of argument when he says, "When you add *one frame at a time* to your big colonies, do you not thereby make a great amount of labor?" For with the big hive Mr. Dadant *can*, if he so chooses, give all the room at once, just as it can be given with the small hive. That is, he can give the full quota of frames at the start, thus making really *less* work than if he had to add a second story.

I think that, when a second story is given below, the bees can and do increase the size of their brood-nest just as gradually as if large frames were added at the side one by one, with the exception that they hesitate a little to make the first start across a bottom-bar, a top-bar, and space between. Remember that the bees don't make their first start in the lower story by filling one comb from top to bottom; but as soon as a little start is made at the upper part of one frame a start is made at the tops of its neighbors at either side, the bees preserving the spherical form of the brood-nest until the lower story is pretty well occupied.

In the saving of heat at a time when it is very important to save it, it seems to me the two stories of smaller hives have the advantage. Granted that you can add one frame at a time with the larger hive, closing up each time with the dummy, the same thing is done automatically with the two-story, requiring no labor on your part. When a second story is given below, no extra task is thrown upon the bees to keep warm any space they do not occupy. Isn't the upper story just as warm standing on an empty lower story as standing on a bottom-board? Isn't it a little warmer? for when standing on the bottom-board the wind has a more direct chance at the bees. As they move gradually downward they warm up the space just as fast as they need it, and no faster.

"But if you are aiming to raise comb honey," says Mr. Dadant, "as the queen goes downward, as a matter of course the bees will fill the space above them with honey as the brood hatches, and the result will be from twenty to an indefinite number of pounds placed in these combs before the sections are touched." That's a strong point in favor of the single-story, *if it's correct*. I'll try to show twice that it isn't correct. When the time comes to put on supers (and that's just a little *before* any surplus is stored) I take away the lower story, leaving eight frames of brood, but no "twenty to an indefinite number of pounds placed in these combs before the sections are touched." It's possible I might do better to leave more room, but I'm not sure of it, and I haven't made a big success of leaving two stories through the harvest. I think it's clear that Mr. Dadant's statement is not correct as applied to my practice. That's once.

Now as to the practice of those who allow the two stories to remain. I've had queens that would keep 14 Langstroth frames filled with brood. Friend Dadant, don't you see that, for such queens, your 10-frame Quinbys are too small? Why not come over on my side and advocate larger hives? But I'll not insist on that, for such queens are probably exceptional. Of course, the lower story can be closed down to any size desired; but even if the whole sixteen frames are used I think it may be shown that Mr. Dadant has overestimated the case a little. There is some confusion in the matter of comparing frames. The editor counts 10 Quinby frames as equivalent in comb surface to 12 Langstroths. In Dadant's Langstroth 9 Quinby frames are counted equal to 12 Langstroths, which is nearer the mark. Thick top-bars have made a little difference in the capacity of the Langstroth. I have just measured one of my frames, and it has a comb surface of 144½ inches. The Quinby has a comb surface of 189 inches. That makes 10 Quinby frames contain a little more than 13 Langstroth frames. If 10 Quinby frames are right, then 16 Langstroth are less than 3 frames out of the way. I think that, instead of that being too much by "twenty to an indefinite number of pounds," it would be only from an indefinite number of pounds up to twenty.

Mr. Dadant says he has a larger super surface. True, and that's a good thing. But it makes the supers heavier to handle, and that's a bad thing. And when it comes to counting up the number of unfinished sections at the close of the season, the advantage is on the side of the smaller super.

As I said in the beginning, I'm afraid the larger frames in the single story are a little better than the smaller frames in two stories; but if I can possibly help it I'm not going to believe they're enough better to balance the great advantage of having the lighter hives to handle.

Marengo, Ill., Dec. 8, 1898.

[I agree with the doctor, because all our hives are eight-frame, and because that is the way I *want* to believe. But, joking aside, the eight frames are much handier than the one big hive.—Ed.]

RAMBLE 161.

Bicycling in the Mountains.

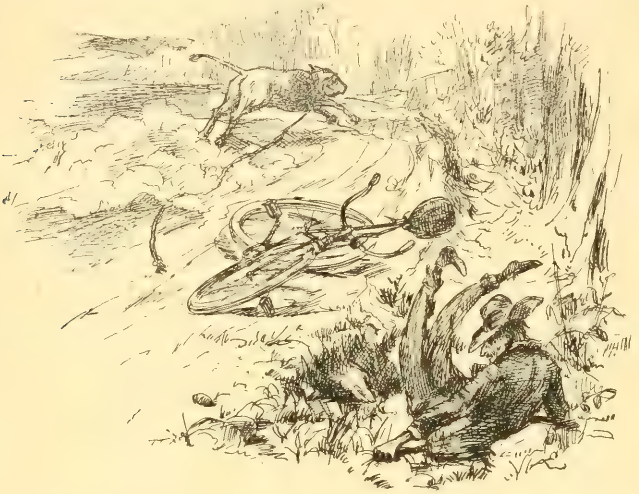
BY RAMBLER.

From any point of view in Northern California it is found to be a strictly mountainous country. Scott Valley is merely a small space upon the margins of Scott River where the land is fertile and could be tilled, while surrounding this valley on all sides there is nothing but mountains.

Whoever has passed over the northern route of travel will remember how the line of railroad is hedged in by mountains, and how few the tillable places are; so from Scott Valley west to the ocean, a distance of sixty miles, it is mountain peak and canyon, a wild and silent country.

The KlamathRiver drains all of this country, and its course through the mountains is marked by gorges of sublime magnitude. About thirty miles west from Scott Valley we find Marble Mountain, a region but little known, and accessible only on pack animals, but in point of grandeur the scenery approaches that of the Yosemite.

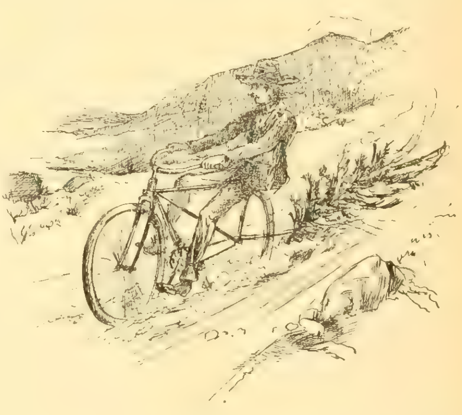
Owing to these mountain barriers there is no way of getting to the coast except over these pack-trails; but directly west from Scott Valley and Siskiyou Co. we find in the extreme and obscure northwest corner of the State the county of Del Norte. The only convenient route whereby to get into this county is by water from San Francisco to Crescent City, the county-seat. I understand, however, that around said city, and in the nearby towns, is a good location for bees. Alfalfa is grown there, and my informant spoke in glowing terms of the abundance and good quality of honey-dew. This gentleman was not then a bee-keeper, but was engaged in the cattle business; and from his point of view Del Norte would be just the place for profitable bee-keeping. His reasoning was from a cattle-dealer's point of view, and as follows: The owners of cattle in these mountains during the long winter have to pay $6.00 per ton for alfalfa hay. The same cattle could be wintered in the Sacramento Valley for $3.00 per ton for the feed. The natural supposition of the uninitiated would be that, from an economical point of view, the cattle should be wintered there. The cattle-dealer acknowledges that there would be a saving if the cattle were moved south; but there is another and more profitable end to the proposition. "Here in the mountains," said the cattle man, "we are just half way between San Francisco and Portland, and we command both markets. If the price of beef rules low in San Francisco we ship to Portland, and vice versa."



He thought the same rule would work well in producing a large amount of honey in Crescent City, and shipping the product by water, as the case might be, to northern or southern markets. There would certainly be a great saving in freight rates, for shipping by water is always economical. There is much wisdom in this reasoning; and perhaps it would be well for some of those who are becoming disgusted with the dry seasons of Southern California to make a further investigation.

While sojourning in Scott Valley I made a radical change in my method of locomotion. Whenever I have heretofore been siezed with a bicycle fever it has usually ended in the purchase of a horse and cart; but here the purchase of such an outfit meant the sale of it again in a few weeks; therefore, owing to all of the circumstances, my wheel-fever took such an acute form this time that one evening the mail coach from Fort Jones dropped off a brand-new Cleveland wheel to my address. We became quite well acquainted in a short time; in fact, we became boon companions; and the turns we had whirling along the tortuous roads, through the pine forests, stirring up the crisp pine needles, and breathing to the full the balsamic fragrance, are times and seasons not to be forgotten.

We have roads in Siskiyou County that will give the rider in any conveyance all the variety desired, and my first essays on the wheel were full of thrilling experiences. Just imagine the "thrilling experience" of pushing the wheel ahead of one's self up a steep mountain side, and then just imagine sailing down the other side with a large pine bough attached to the wheel frame with a strong cord, and dragging in an unwilling manner in the rear. This was my only brake, and it worked well, and made the very welkin hide itself in the dust. But experience is a great teacher, and I now have a better brake method. I place the toe of my shoe on the forward wheel just back of the fork, and it gives such control that I can approach the steepest grade without fear.



I have before remarked that this is a great game country. The mountain fastnesses are favorable to the occupation by wild animals, and the hunting population is sparse. In the autumn, bears intent upon securing their daily rations of acorns sometimes stray down to the farming district. One morning the butcher boy, in his rounds between Oro Fino and Etna, ran across one of these derelict bears in an intervening piece of woods. The boy put whip to his horse, and sped on to Etna. The report that a bear was near town set the hunters in motion, and only a few hours elapsed when poor bruin was shot and brought to town.

In my explorations of these wild canyons through which I could ride a wheel tolerably well I expected at almost every turn in the road to see among the big trees a specimen of big game. It might happen, you know, just as it did with the butcher boy.

Having no gun with me at such times, I might be in quite a predicament. Still, my curiosity to see the country led me into all manner of wild places. Aside from rabbits and other small game, a stray coyote would occasionally halt in surprise as I whirled around a bend in the road, stick up his ears, and then scurry away through the forest.

Kitter Creek flows from one of these wild canyons, and in one of its clearings is where the late Mr. Levering had one of his apiaries destroyed by bears.

It is not remarkable that, while exploring such places, and thinking of possible adventure, the senses of the novice should become very acute, and the least unusual noise quicken the pace and give more of a tension to the nerves. And so it happened one day while in Kitter Creek Canyon that I became quite excited as I saw a violent agitation of the bushes to the right, and ahead of me, and presently I caught a glimpse of a bulky cinnamon-colored body. Now, there are cinnamon bears in these mountains, and they are exceedingly fierce; and the immediate inference was that this was one of the varmints. I could hardly stop my wheel without coming in deadly contact, therefore I could do nothing but scorch ahead; but it was not much of a scorch, for the road was sandy. As the animal plunged through the brush I imagined growls, and my hair began to elevate. Oh for a gun! oh for a stray hunter with his trusty rifle! But no friendly aid appeared. All my past life flashed suddenly before me, and my conscience was dreadfully pricked by the sarcastic remarks in which I had indulged about old maids and grass widows, and especially what I had told Mr. Mallow, the Fort Jones bee-keeper, only a day or two before. He inquired of me if that young man Wilder who traveled with me a few years ago was not dead.

"Dead, Mr. Mallow?" replied I; "why, he is worse than dead—he is married."

In this supreme moment I was so sorry I said it; for if Mr. Wilder was worse than dead with just a wife, what must be the condition of Mr. Mallow with wife and eight children? About the time that sorry feeling had taken possession of me the animal plunged across my track. It was all done in a second of time. My wheel went from under me, and I was tumbled in the dust, and at the mercy of the beast. I tremblingly bounced to my feet; but what a relief! Then I picked up my wheel; then I laughed. My bear, when it came into the open, proved to be nothing but a contemptible cinnamon-colored calf. It had escaped from some alfalfa-patch with a long picket-rope attached to its neck; and my wheel, in passing over the rope, and the rope running rapidly under it, nicely tripped the rider. My exertions in the dust caused the calf to continue its headlong career, which I hope is still continued; but I really believe a wheelman was never tripped in like manner before.

But all things have their times and seasons, and the pleasant days I had enjoyed in Scott Valley drew near their ending; and as I contemplated on my journey south I regretted that I had lived so many months near the Oregon line, and had not put a foot on its soil.

"Why," said I to Mr. Levering, one evening, as an inspiration struck me, "what is to hinder me from going north through Oregon to Portland, and from there to San Francisco by steamer?"

"Nothing," said Mr. Levering. "It is only 250 miles. Take your wheel and that calf along, and you will astonish the natives with your fleetness."

Mr. Levering threw in that calf matter as a joke; and as we talked and joked over the matter the idea grew upon me to such an extent that I not only resolved to put a foot in Oregon, but both feet into Washington, and to return south from Seattle.

In accordance with the above plans I left Scott Valley on the 26th of October. My baggage went out in a freighter's wagon while I wheeled out. The last I saw of Mr. Levering he was leaning pensively on his cane while the morning breeze was toying as usual with his whiskers. I crossed the mountain safely, and stopped that night in Yreka.

BEGINNERS' QUESTION BOX

BY E. R. ROOT

E. L., Pa.—It would be simply impossible to cross bumble-bees with Italians, because they are functionally different; and, for another reason, they are an entirely distinct species.

F. A. K., Wis.—If your bees have the dysentery in your bee-cellar I hardly know what you can do. If they once get this disease indoors they are pretty sure to die in large numbers before spring. The trouble is, doubtless, due to inferior stores. If you could take away the stores they have, and give them bee-candy, it might help matters. If you had combs of sealed sugar stores this would be altogether better; or if you do not happen to have this, mix powdered sugar and honey into a stiff dough and set on top of the frames; but before doing this I would recommend that you take away the present stores and give them empty combs.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE.

GOOD MANAGEMENT OR MANY COLONIES—WHICH?

Question.—I commenced in the bee business two years ago, starting with four colonies, and I now have sixteen. I had intended to increase up to about fifty colonies, and work these carefully and as thoroughly as I was capable of doing, thinking that fifty well worked would be better than more not so well cared for; but in talking with a man a few days ago he advised me to increase to 100 or 150, he claiming that such a number would secure for me better results, with less labor, than would the fifty worked as I proposed. He said the extra labor I would expend on the bees, working as I proposed, would more than buy the extra hives needed, while I would secure more honey in the end by keeping the larger number of colonies. What do you think in that matter? I wish to do that which will secure to me the best results for my labor.

Answer.—There is an idea prevailing with some bee-keepers that more money is to be made in keeping bees by keeping a large number of colonies and letting them largely take care of themselves than there is by keeping a less number of colonies and properly caring for them. Not long ago I received a letter bearing on this subject, which will be right to the point here, the same being from an apiarist of considerable experience, who said that he was going to keep more bees than he had formerly done, and do less work with them, for he believed that double the number of colonies would give him fully as much honey as he had been getting (if not more), even if he did not manipulate them at all. He said that he believed the system of management used by many in securing large yields from individual colonies caused a greater amount of labor and manipulation than there was any use of, and henceforth he would adopt exactly the reverse of the plans he had formerly used, and put more bees into his field, so that he might secure the same amount of surplus as before, with very little labor. All that would be required would be the investing of a little more capital in the shape of hives, etc., and that the "good management" plan would soon be something known only in the past history of bee-keeping. I have not tried to give his words exactly, but I have given the substance of the letter. As this came from a person in whom I had much confidence, and as I was using the management plan, and was and have been recommending the same to be the right way in which to secure the best results, it was but becoming in me to consider the matter a little; and if I was on the wrong track it would be better to become right, and that speedily, especially as my writings might influence others in the wrong direction. After carefully considering the matter it did seem to me that there was one very important item regarding these extra colonies which the advocates of it entirely overlooked, which is great enough to more than pay for the manipulation, so that the investing of capital in more hives for the extra number to be kept is worse than thrown away. The item I allude to is that each of the extra colonies put in the field in order to secure the honey secretion from a given area with but little or no manipulation costs from 60 to 75 lbs. of honey each year to support. Some apiarists who have studied closely claim that no good colony can exist a year without consuming fully 100 lbs. of honey; but that it may not appear that there is a desire on my part to overdraw the matter we will place the amount needed to carry any good colony through a year at 60 pounds. The question then comes to us, "Which is cheaper — a little extra manipulation, or the extra colonies, hives, etc., and the honey which they consume?" Suppose that 100 colonies produce an average yield of 50 pounds each, and by so doing secure all the nectar in a field year by year. This would make 5000 pounds of surplus as our share of the field, while each of the 100 colonies will require 60 pounds, or 6000 pounds as a whole, as their share to carry them through the year. Thus we fail to secure to ourselves one-half of the honey from our field by employing an extra number of colonies. On the other hand, if we employ the management (or economy) plan, which our English friends do, that of making, by thorough fertilization and careful tillage, one acre of ground produce from 50 to 60 bushels of wheat to where we Americans produce only from 20 to 30 bushels, we shall find our statement thus: Eleven thousand pounds is the product of our field; 50 colonies are all that are needed, with good management, to secure it. Then 50 colonies must use 3000 pounds of this for their support, leaving 8000 pounds for the manager. Thus it will be seen that the manager can appropriate to himself 3000 lbs. of honey for his manipulation, and use little if any more time than he would use on the 100 without manipulation; hence from the standpoint of overstocking a field the management plan is 3000 pounds ahead of the plan of keeping an extra number of colonies. At the present low prices of honey, this, at 10 cents per pound, would amount to $300 as the price of the extra manipulation, should it be proven that such was required, besides the saving of the capital, and interest on the same, which would be invested in the extra hives. I am firm in the opinion that there are many men in this country who do not receive a greater amount than that for a whole year's manipulation (work) in the coal mines and other places. And this same thing holds good, be the number of colonies kept great or small. A man can care for half the number of colonies on the management plan as easily as he can for double the number as proposed by my correspondent, and suggested by the adviser of the questioner, and this half will give the apiarist as good results in dollars and cents as will the whole when cared for in a slipshod way, and save the extra honey consumed by the extra half of the number of bees, as clear gain to the bee-keeper. Thirty years of bee-keeping life tells me that this is not mere fancy, but facts which the success of the two plans proves, as will also be obvious to all who have closely watched the reports in our various bee-papers during the past. If any reader, or the questioner, has any doubts along this line let him try the two plans side by side till he is convinced. With the low prices of honey seems to have come the idea of going back to the old idea that "bees work for nothing and board themselves," and so many bee-keepers seem to think that all that should be required of them may be summed up in the old saying of "hold the dish to catch the porridge." To the truly enthusiastic bee-keeper there is no fun in such a plan as this. Pleasure comes only through a love of our pursuit; and if we love it we are always interested enough to make the labor *fun* while we are doing it. Did any one ever have any fun going fishing and get it by swinging in a hammock in the shade? Did any one ever enjoy himself in the fox-chase while sitting beside the sitting-room fire? The love of fishing and of the fox-chase is greater than that for hammock and fire, and so the love for *work with the bees* must be greater than the love for ease if we would succeed in our pursuit.

HEADS OF GRAIN FROM DIFFERENT FIELDS

MOTH-WORMS IN FENCE HONEY; A POSSIBLE OBJECTION.

Mr. E. R. Root:—I have watched the discussion of the fence question with keen interest, and I am thinking of making a trial of it. Nearly all my honey in the past has been raised without separators of any kind.

Will you please give me your opinion of the following? Will there not be great danger of the tiny wax-moth working on the cappings of fenced honey when it is crated up for shipment? The combs coming as they do so near together are, in my opinion, much more liable to this damage, for I have noticed in crating no-separator honey that, where two combs would touch, or nearly so, that would be exactly where these little moths, too small to be seen by the naked eye, would do their worst work. Have not other California apiarists brought up this question with you before?

I have much wished that I could try the fences in connection with ordinary 7-to-foot bee-entrance sections. Is this wholly out of the question? I do not like the idea of having a crate of honey, when opened, showing nothing but the wood parts of the sections. I like to have the honey smiling up from between the sections as it shows in the ordinary open-top section. Don't you?

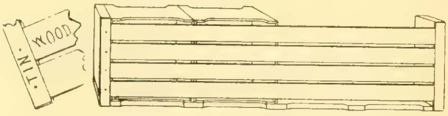
Will you kindly send me a quarter of one of your fences? I wish only the end posts and the posts next to it, with the slats. This will give me the measurements and the idea of it, to see how I can work them into my supers. Also please send me a quarter of a no-beeway section. These will be easily mailed, and will do me as well as a whole section and fence.

I will give you an inflexible rule to help you out in deciding what length the articles should be in GLEANINGS. When you have a very long article on an interesting subject, right to the point, put it in; when you have a real short one that is just as good, put that in; and when you have a medium-length article that is just as readable, give that the same chance you did the others. G. K. HUBBARD.

Riverside, Cal., Jan. 24.

[There may be something in the fact of having two adjoining faces of honey so much less than a bee-space apart; but after all, we hear but little about moth-worms nowadays since the advent of Italian bees and their crosses. I should, therefore, anticipate but very little trouble from that source. So far fence honey has been gobbled up too soon in many markets to be damaged much by moth-worms.

It is entirely feasible to use a slat separator with the old-style beeway section. Indeed, we list in our catalog this year that sort of separator. The accompanying illustration shows how it may be used. It is constructed the same as any fence, with the exception that there are no cleats or projections on the bars; and the ends are bound together with a strip of folded tin. These slat separators, as we shall call them, may be used in any super using old-style separators and beeway sections.



Mr. J. E. Crane used a good many such separators last season, and is of the opinion that the freer communication made better-filled boxes; but at the same time he prefers the plain sections and fence.

As to the length of communications, and which ones shall find a place, this is often a hard matter to decide. What may be interesting to the editor may not be so to the reader. After all, it is the readers' preferences that we have in mind. I desire, therefore, as far as possible, to keep in touch with our readers and hope they will be free to criticise the contents of GLEANINGS, as by that means I can make a more interesting and readable journal.—ED.]

HOW TO SECURE THE GREATEST INCREASE FROM A SINGLE COLONY.

On page 164, April, 1881, of GLEANINGS, is this statement: "A friend in Michigan, with hives and empty combs, once built a single colony up so as to make 30 of it in a single season."

Will you kindly tell us how to proceed to accomplish such results, or even half so many? What would be the relative value of old combs and full frames of wired foundation in building up nuclei? Would not feeding be necessary from start to finish? B. F. JONES.

Idaho Falls, Ida., Jan. 24.

[Given a good strong colony, a supply of ten or twenty hives complete, nailed up and painted, each hive filled with frames of foundation, full sheets (not half sheets), one can, with care and a knowledge of the business, secure a large increase in a single season—possibly thirty from one. If I could have frames filled with empty combs, or combs with a little honey in, I should prefer them to mere sheets of foundation. My method of procedure to get the largest increase would be this:

As soon as there comes settled warm weather I would divide my colony up into four two-frame nuclei. To each I would introduce an untested Italian queen at the time of making the division; contract the entrances down to each hive, so that one or two bees could pass at a time. I would then feed a little every day. If I could just as well I would use cushions on top of the frames, and on each side, putting the nucleus in the center of the hive, as it is very important to keep the little cluster of bees warm.

When the queen fills the frame or frames with eggs, and there are bees enough to cover, I would put in another frame on the *outside*. As the weather warms up it might be advisable to put in still another frame, putting this one in the *center* of the cluster, in the mean time keeping up gentle feeding daily. A very good feeder for this purpose is the Boardman. This can be slipped into the entrance, and by screwing the can tightly or loosely into the cap the flow of feed can be regulated for the daily needs.

I would make the syrup by mixing together sugar and water in equal proportions by measure. Stir thoroughly, and then pour into feeder-cans.

As soon as the nuclei have two or three frames of sealed brood, larvæ, and eggs, take out one or more frames from each, and form another. This plan can be continued till one has 15 and possibly 20 little colonies; and if one has experience he *might* continue the division till he has 25 or 30; but he should stop dividing within at least 60 days before the setting-in of cold frosty nights.

If one can not afford to buy queens he will have to raise them and then the increase will be cut down more than a half, probably.

While an expert may possibly in one season be able to produce 30 colonies from one, the average beginner, probably, would not be able to produce more than 8 or 10. In 1892 I myself, without any special effort, reared all the queens, and increased an apiary from 10 colonies, some of which were almost nuclei, to some 85 good colonies that went into winter quarters. They had no empty combs, but they were given full sheets of foundation. They were not fed, but were made to depend entirely on natural sources for their supply. Had I fed after the honey season, and given empty combs, I might have made double the increase. But let me tell you, it is one thing to get an increase of 30 from one colony, and it is another thing to get a proportionate increase from 10 colonies. To get so large an increase as 30 from one stock, one must have a long season, supply laying queens as fast as needed. feed a little every day, allow no robbing to get started, and, above all, queens must be good. It may be there is a bee-keeper living that is smart enough to make an increase of 30 colonies from one in one season by raising his own queens. If there is one who has accomplished the feat, let him hold up his hand and tell how he did.

There is much being said about expansion nowadays; perhaps it might be well to devote a little space to the subject of expansion of one colony.—ED.]

THE PETTIT IDEA; IMPORTANCE OF A BEE-SPACE OUTSIDE OF THE OUTSIDE ROW OF SECTIONS.

I had intended to write you for GLEANINGS in regard to sections and prices, but the ground has already been covered. I will merely say that my experience in securing 2000 lbs. of comb honey from 30 colonies this season convinces me that I want a bee-space on the outside of the outside row of sections, with passages through the separator. O. E. NICHOLS.

Cincinnatus, N. Y., Jan. 30.

A CORRECTION; MOUNTAIN GROUSE.

I am reported as having an apiary in the Yellowstone Valley, near Billings, and that I had taken 200 lbs. of honey from one hive. The truth is, I have never handled bees; but I shall be a bee-keeper some day. I think the Yellowstone Valley a good place for an apiary. I am glad you enjoyed your trip through the park, and hope you will come again. Those "pretty chickens" you ran across on your trip were mountain grouse—too bad you did not have a gun. CARL VOLLMER.

Effingham, Ill., Jan. 1.

[Thank you, friend V., for setting me right. My informant said he felt pretty sure you were the man. Since we are mistaken, can't some other Montana bee-keeper tell us who it was, or give us a report from the Montana alfalfa regions?—A. I. R.]

THE DARKY BOY IN THE APIARY.

Say, Ernest, my eleven-year-old girl is interested in the discussion of white or black clothing angering bees, and wants to know how the darky boy would figure in the apiary.

Alsea, Oregon, Dec. 30. F. A. BATES.

[That's a question I can't answer; but the average colored boy will hold his own in any apiary.—ED.]

SWEET CLOVER FOR ALKALI SOILS.

We have nothing so valuable here as sweet clover to enrich alkali lands. Wherever it has grown for two or more years it has left a rich spot. I will sow it on all my alkali land this spring that I can get water on, as it needs irrigation here the same as alfalfa.

Gazelle, Cal., Jan. 30. A. A. BROWN.

THE HONEY-LEAFLET A SUCCESS IN SELLING HONEY.

We note that you want to hear from others in regard to the success of the honey-leaflet. So far as we can judge we believe it has helped the local sale of honey on the western slope. We have only a few left out of 5000, and several merchants have asked for more to distribute to their trade since first having them. We have had many farmers and bee-men speak well of the leaflet, and say it was a good thing. THE ABBEY HARDY CO.

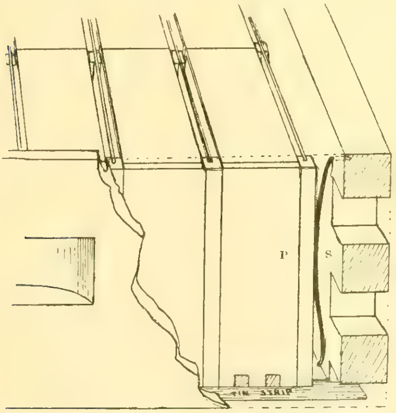
Grand Junction, Colo., Jan. 9.

TRADE NOTES

BY E. R. ROOT.

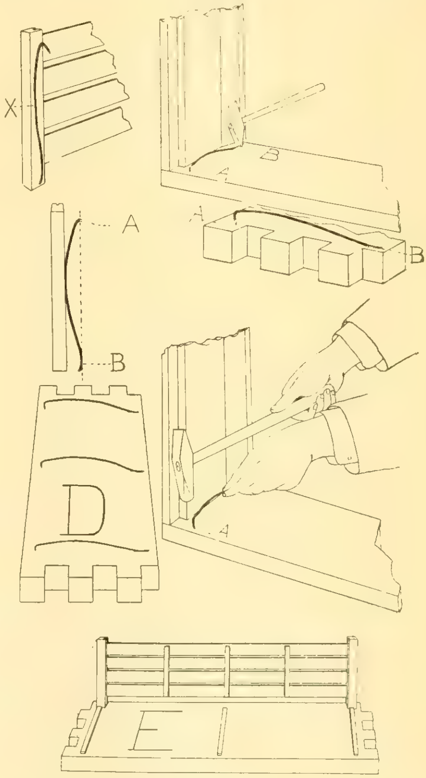
OUR 1899 SUPERS; SPRINGS VS. THUMBSCREWS AND WEDGES.

It seems to be generally admitted that a means for producing compression on sections when in the super is desirable, and some go so far as to say it is a necessity. If sections and separators are placed in supers loosely, it leaves little interstices or spaces that the bees fill up with propolis. Various devices have been used to bring about the desired pressure. Some prefer and use thumbscrews; others, wedges; and still others, tightening-strips. Thumbscrews stick out in the way, and sometimes in damp weather become stuck fast in the holes. Wedges are very often propolized fast, making it difficult to remove them. The same objection applies to tightening-strips, although to a less extent. We now use two or three springs in our 1899 supers, one at each end, and bearing against the fences, and one in the center. See S in the cut below.



These springs produce a gentle even pressure against the contents of the super; and, no matter how much the weather changes, causing the stuff to shrink or swell, those springs will adapt themselves to the condition, producing always a gentle yet firm pressure. After the sections are filled they can be easily taken out, owing to the fact that there is a *yielding* pressure; and propolis—well, it has no show.

The manner of applying the spring compression to the supers is shown in the accompanying illustrations. X is a curved piece of steel wire, one end of which is bent at a right angle, and sharpened. This is driven into the wood at a point that will come opposite the end cleat of the fence when in the super. After this is driven in, the other end is pounded down into the wood, making a sort of groove for the end B to slide in. Three such springs are used in our regular super—two to come directly opposite the end-cleats of the fence, and one opposite the center cleat as at D, showing super side detached. On the opposite super side, and spaced in the same manner, are nailed three thin cleats, supplied with each package. These are to keep the outside fence a bee-space from the super side, about the same distance away as the springs do on the opposite side. We put in enough fences so that we have a fence between each outside row and super side. It costs a little more, it is true; but it carries out in effect the Pettit idea, or what he calls his divider—a method by which it is said the outside faces of the outside rows of sections are as well filled out as the faces in the center rows. Reports from bee-keepers last season go to show there is a good deal in this little scheme, and if so it may be worth dollars.



EDITORIAL

BY

E. R. ROOT

THE boss printer says we have enough matter, editorial and otherwise, to fill another complete journal, notwithstanding this number is eight pages larger than our regular issue. This will explain why some communications sent some little time ago have not yet appeared.

WE have been having some cold snaps in Northern Ohio. The mercury has ranged all the way from 15 to 20 below zero, and some reported that it went even below 20. While it perhaps may have been as cold as this before we never knew it to keep there so long. I just received a letter from Dr. Miller, stating that he was in the house with his coat off, notwithstanding it was 24 below zero outside. But he dryly adds, "We have a fire in the house."

FRED S. THORINGTON.

WE have just learned through R. B. Leahy, of the Leahy Mfg. Co., of the death of Fred S. Thorington, of Chillicothe, Mo. Mr. Thorington has been quite a prominent writer, particularly for the *Progressive Bee-keeper*. Mr. Leahy writes:

> He had been an invalid for more than 20 years, and with a wheel-chair he wheeled himself through his apiary of 40 colonies (sometimes) of bees, and cared for them. His neighbors say for him that in all these days of pain and inconvenience he always remained cheerful, and was a lover of flowers, birds, and bees.

Most of us, under such circumstances, would hardly have thought we could keep bees, to say nothing about taking care of them. And this reminds me of the case of Mrs. L. C. Axtell, one who has been an invalid all her life, and yet one who has done a large part of the work in managing one or more large apiaries. Some of the time she has been obliged to lie on her back while doing her work. Such people have real pluck and heroism.

APIS DORSATA FOR THE UNITED STATES.

AN American soldier now in the Philippines at Manila has kindly volunteered to secure *Apis dorsata*, of which he says there are a great many in and about Manila, and further that the natives have offered to furnish him the bees. He has asked for instructions how to ship, etc. We have given him the necessary information, and have offered to pay him $25.00 for one queen, $35.00 for two, and so on. We will publish his interesting letter in our next issue.

I for one feel sanguine that we shall be able to obtain the big bees, because Mr. Uglow says Manila is only 20 days from San Francisco. Of course, he will have to arrange to get direct steamer connection so the bees will not be caged any longer than is absolutely necessary. If any of our subscribers desire to communicate with Mr. Uglow, his address is, John C. Uglow, Co. M, 2d Reg. Ore. Vol.

THE VALUE OF THE BICYCLE FOR OUT-APIARY WORK.

IN the *American Bee-keeper* for February there is a very interesting and valuable article from one of "Coggshall's lightning operators," Mr. Harry S. Howe, to whom I have before referred. His experience in regard to the value of the wheel for all kinds of out-apiary work is very nearly my own. In fact, I am almost inclined to put all he says in italics.

The average bee-keeper under 45 who is used to handling horses, and says he must have them anyhow, and therefore thinks he would have no use for a bicycle, is making a big mistake. Let him keep his horses if he wishes; but he will find that the bicycle will be used much even then.

As our readers know, every summer I manage one out-apiary myself, and do nearly all the going and coming on a bicycle, even to carrying foundation, supers, and what not. There are lots of things a fellow can do *if he only thinks so;* and I have no doubt that Harry could even carry bread and milk if he wanted to.

As I have often said, one can hire a team for one out-apiary or two, and possibly three or four. All hive stuff should be delivered early in the season, and then during the greater part of the rest of the year one can come and go on his bicycle, even carrying some material when occasion may require. After the crop is secured, then of course he will be obliged to hire a team or teams to carry it to town. As a general thing a farmer will do the work for a little honey.

Keeping a horse is expensive business, as I know from sad experience; and then a horse around bees—well, nature never designed that they should be together in company. I had one valuable animal killed, as some of our readers know, at one of our out-yards. I have had runaways in going to yards; broken thills; broken buggies; broken harness. I have been through the experience of having a horse have the mud fever; I have been kicked almost into insensibility. Oh, dear! it would have been money in my pocket if I had never invested in horse flesh.

The horseless carriage will soon be here, and then we can bid good-by to the horse so far as the bee-business is concerned.

There, now, I did not intend to write all this prelude to Harry's excellent article. Here it is—or, rather, an extract from it:

> By using a wheel a man can do much more work in the out-apiaries than with a team.
>
> Mr. Coggshall's yards average nearly 10 miles from home, and my lot average 14, which gives lots of chance to save time on the road. With a wheel a man can start as soon as he is ready. When he gets to the bees he can go right to work. The time saved on the road and in getting started comes just when it is worth the most.
>
> My regular riding gait is 12 miles per hour, or twice as fast as a good team can go over the same roads. Of course, once in a while a wheel will get stuck in the mud, but not often. It did not happen to me once last year, and only twice this season, and one of those times I should have gotten home if I had been alone.
>
> There is a great difference in wheels in that respect. When I built my present wheel I had that point in mind; and by using small tires, with plenty of room between the tires and the frame, I can go right along unless the mud is very deep. The time saved by the

use of a wheel, where one rides as much as I do, would pay for one in a single season.

One of the worst drawbacks to the use of the wheel is the impossibility of carrying bread and milk for dinner. In the case of several of the yards there is no place to get a meal, so we have to carry what we have. At some of them we have a regular boarding-place, where we can get a dinner or stay over night.

Even on the farm the wheel comes in handy. One day recently, one of the horses was suddenly taken sick. Brown got on his wheel and hustled for a veterinarian. When the doctor got there he said he was only just in time to save the horse's life. If we had taken the time to hitch up another horse, that, together with the time Brown made by "scorching," would have made it too late.

Sometimes people ask me how I manage to run my out apiaries without a horse, but it is easy. My teaming costs me about the same as my bicycle-tires, and can be paid for in honey at that.

Speaking about bicycles, my advice is to get a good one. Do not pay much less than $40.00 — better pay $50.00. There are some good wheels at $35.00 ; but before you purchase one, let me know the name, for perhaps I can tell you whether it is a good one or not.

Now, perhaps you would like to know what wheel I would recommend. Nearly all* the Rootville folks and many of our employees are riding Clevelands. We have found them to be so immeasurably superior to the common run of bicycles that we would hardly take any other as a gift. They run smoothly and easily, and do not require repairs.

This is not a "paid puff," for I am only telling you what is my actual experience and sincere belief in regard to bicycles. There are others, probably, just as good; but I *know* these are excellent. If you want a Cleveland, just write to the H. A. Lozier Co., Cleveland, O.

I omitted to state that the Cleveland bicycles have gear-cases. I would no more think of riding a bicycle in the future, without having the chain covered, than I would think of going without a hat. My Cleveland, with its gear-case, has not had a cent's worth of repairs, and the chain has not even been touched in over a year's riding. It runs so still that one would hardly suspect there is a chain inside of the case. I have run that wheel through mud and water, dust and sand, over snow and ice, I was going to say, nearly every day in the year; and, with the exception of the tires, it is practically as good as when it came out of the shop.

THE PURE-FOOD CONGRESS.

On page 269, April 1, 1898, I spoke of the last meeting of the Pure-food Congress that assembled in Washington on March 2d; and I further referred to the fact that our representatives E. T. Abbott and Manager Secor, sent by the U. S. B. K. U., had received prominent recognition on the floor; that one of the members was made chairman of the Committee on Organization, and another, vice-president for Iowa. Another meeting of the same organization has been held, also in Washington, on the 19th and 20th of January. I take pleasure in copying from Mr. Abbott's paper, *The Modern Farmer and Busy Bee*, the following paragraph :

> President Blackburn showed himself to be an excellent presiding officer, and, owing to his promptness and decision, a great deal of routine business was transacted, notwithstanding there were a great many addresses on the program. It was voted to make the organization permanent; a constitution and by-laws were adopted, and officers elected, to serve until their successors are chosen. The old officers were all re-elected, it being the opinion of the committee on organization, of which the writer was chairman, that those who had begun the good work would better be left in full charge for the present.
>
> It will no doubt be of special interest to the bee-keeping friends to know that our industry received its full recognition on the floor of the congress the same as last year. The editor of *The Modern Farmer and Busy Bee*, who went as a representative of the United States Bee-keepers' Association, and the Missouri State Board of Agriculture, was made chairman of two important committees, and was again named as vice-president for the State of Missouri. Mr. Secor was continued vice-president for the State of Iowa; E. S. Lovesy, for Utah; and, at the suggestion of the writer, Thomas G. Newman was named for vice-president for California. It will be seen from this that the bee-keepers will have themselves to blame if they do not have a hand in this important legislation. I desire to say in this connection that the bee-keepers of the United States are under special obligations to the Burlington, Big Four, and the Chesapeake & Ohio Railways, for it was through the courtesy of these roads that the delegate of the United States Bee-keepers' Association was able to attend the Congress, there being only the small appropriation of $15.00 set apart for this purpose by the directors of the Association, and this amount would not pay hotel bills and sleeping-car fare, to say nothing about the other necessary incidental expenses.

Mr. Abbott says the attendance was good, and the delegates in general believed that the pure-food bill, as revised by Congress last year, should be urged without any material changes. Some favored the changing of the wording in a few minor respects, while some delegates tried to so amend it as to kill it, but the latter were promptly "sat down on." The proposed law does not favor classes. It simply aims to make producers sell all articles of food for *just what they are*, but does not propose to prohibit entirely any of them, but to let each stand on its own merits; but those merits must be plainly set forth on all objects offered for sale. Mark Twain says he found this state of things prevailing in Paris, and he says it seemed strange to him to see such a "superfluity of honesty" as was displayed in that city on all the jewelry offered for sale. No one could get cheated.

The following is an abstract of the address of President Blackburn:

> The question of what we shall eat has been a neglected subject ever since Eve ate the apple in the Garden of Eden. What a myriad of evils would have been avoided had not the first of all pure-food laws been violated!
>
> The measure we are here to consider is not offered as a cure-all in any sense. No one, not even its most ardent friends, considers it a panacea for all the ills that afflict our food supply. Neither do we think that the twin sister of fraud—the harlot adulteration—will be an impossible creature when this bill becomes a law. Since the great lawgiver of Mount Sinai issued that immortal edict, "Thou shalt not steal," men have stolen, and will steal, until the end of time.
>
> While this bill does not do all we could wish, does not meet all the objections that have been or will be raised against it, it will and does do much that needs to be done, and will be certain to render adulteration hazardous, less profitable, and exposure quick and certain. I think the least observing and the most skeptical will agree that it is high time that the many State measures to protect the public health and secure purity in our food should have their principal features crystallized into a national statute, that all States may engraft their legislative twigs on the national vine, and thus develop the fruits of legislation on harmonious, progressive, and uniform lines.

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*A. I. R. at present is riding a chainless Columbia, also a good wheel.

No national law on this subject will ever fully meet the views or satisfy the desires of all the many States and Territories of this great country.

I do not believe it possible that such law can do so. The critics will say the law is imperfect and we answer: "We are aware of that." They tell us the law has its defects, and we reply: "Show us a law that has not"

The measure as it stands now is a long, sturdy step in the right direction; a strong prop upon which to hang our hopes; a substantial foundation upon which to erect a magnificent structure. It will effectually stop many evils with which we contend; right many wrongs, thus bringing justice where justice is a stranger, and protecting those needing protection yet utterly unable to protect themselves. It will render adulteration difficult, detection sure—a more effective remedy than any which has been proposed, considered, or enacted.

It represents the concrete experience of many years, and the best thoughts of studious minds.

It embodies the compromise views of those who have long considered the important and far reaching questions with which it deals. I do not hesitate to say it is a compromise measure; all such laws are, and always must be compromises. It must be expanded and contracted to meet the composite mental structure which gives it being and stands sponsor for its necessity.

It is important that it should be made a law during the present Congress. I therefore urge you to be on your guard against proposed amendments. Scan well their origin, and consider long their purport. Be not moved by shallow sentiment, nor turned by loose light logic. I adjure you, my friends, to stand as one man for the main features of this measure.

There is good reason for the adoption of this measure. No city or hamlet is free from adulteration, and one of the peculiarities of the business is that, the further away from home an adulteration gets, the more respectable it appears. There is need for this bill from one end of the country to the other.

PROSPECTS GLOOMY; DRY WINDS IN CALIFORNIA, AND NO RAIN; AN UNPRECEDENTEDLY LOW TEMPERATURE OVER THE CENTRAL AND EASTERN STATES; FEARFUL WINTER LOSSES EXPECTED.

I HAVE just received word from J. H. Martin (Rambler), stating that the Californians are getting to be anxious again for rain, as it is nearly a month since their last downpour, and the time is getting short for rain to do them any good for the coming year. I have written to Mr. Martin to let us know by wire in case the long-expected rain does come. You may wonder why I am so anxious to get that information. For the reason that it will make a great difference with buyers in the East and with those on the Pacific coast whether the honey crop in California is assured or not; and the sooner we can get the information the better.

Since writing the foregoing we have heard from Mr. M. H. Mendleson, one of the big bee-kings of California, who writes under date of Feb. 6:

> We are now having a fearful drying wind, and it has been blowing very badly for the past week or ten days, making the present prospects poor again for another year. The surface of the soil is getting dry and hard. I give up the season, although late rains *may* save us.

He further adds that some of the prominent bee-keepers are preparing trips northward to look for locations where their bees can fill up for another winter.

This is a gloomy outlook indeed for California—a failure of honey last year, and a probable one this year. But while they on the western slope are drying up, we of the central and eastern portion of the country are freezing up (i. e., our bees). There has been an unprecedentedly low temperature of a large portion of our country. Even in that mild and balmy State of Oregon a subscriber, on Feb. 7th, writes that it has been 18 to 24 below zero. In Northern Michigan it has been 50 below, and in States where it rarely has been below 20 above it has been down to zero, and staying there.

All this means fearful losses in bees if there is not a change soon for the better. Early in the year prospects (by the way the orders were rolling in) seemed to indicate that this season would be as heavy as last in spite of last year's general failure of honey. But if half the bees die off there will be a lot of discouraged bee-keepers and supply dealers. No one can determine just yet what the outcome will be.

But it's an ill wind that blows no one any good. The heavy winter losses, if they do occur, will not be with the provident and bee-journal readers. They will winter their bees and they will get the crop this summer if there is any honey, and they will have all the markets to themselves. It is the careless and go-it-as-easy-as-you-can bee-keepers that will have a tale of woe to tell. It is they who will get no honey, even if there is a good season.

Later:—After the foregoing was in type the following came to hand:

> I report at this date over half of my bees dead. The hives are full of honey. The inside is daubed up badly, and full of frost. It looks as if there would be a shortage of bees next spring. W. D. Soper.
> Jackson, Mich., Feb. 11.

When a man like W. D. Soper has lost half his bees, then the case is much worse than I thought it would be; for if the up-to-date bee-keeper is going to lose so heavily, how many bees will the go-as you-please take-it easy bee-man have next spring? If they do not have an almost total loss they will have hardly any thing but nuclei. It begins to look now as if there would be a great demand for bees by the pound and nuclei next spring. Here is a chance for somebody to make some money.

Still later:—To-day, Feb. 15, it is warming up, the mercury standing at the freezing-point (32). This will, perhaps, give the bees an opportunity to change their clustering-nest; and if it does it will save possibly thousands of colonies.

DELIVERING HONEY TO MARKET ON A BICYCLE.

AFTER my editorial on the subject of wheels for out-apiaries had gone to press I received the following from a bee-keeper who not only uses his bicycle for apiary work, but actually carried over 3000 lbs. of honey to market on it. Here is what he says:

> You speak of the wheel as being very useful in the apiary. This is my second season in the bee business, and I have delivered 3200 lbs. of honey on my wheel I take as much as 40 pounds at a time in 5 and 10 pound pails, as I retail it all. I am very much in love with GLEANINGS, and always await its coming.
> St. Thomas, Ont. W. J. Robb.

WE are just making preparations to put in a 350-horse-power boiler. Our present boilers are inadequate for the work we have to do.

OUR HOMES,

BY A. I. ROOT.

Whatsoever ye shall ask the Father in my name, he will give it you.—JOHN 16 : 23.

For some time back, dear friends, I have had a good deal to say in regard to the matter of answers to prayer. Several times I have thought that perhaps I was holding on too long to this subject; and yet in my desire to benefit mankind, and to help those who are in trouble, I have been again and again almost impelled to tell you how I had been helped and guided, and lifted through my troubles and discouragements. God forbid that I should at any time or under any circumstances convey the idea to any one that God was more willing to hear and answer *my* prayers than those of the rest of humanity.

A good many times I have worked long and anxiously to accomplish a certain thing, and have failed. Then I hear or read of somebody who has succeeded with the same thing, and I am filled with a great desire to see the man, and to see his garden or farm, with a feeling that, if I knew just *how* he did it, I could do the same thing, or something nearly the same; and I have traveled many miles, as you know, to meet these successful people and to learn their ways; and I have tried through this journal to explain to you how it is they *have* succeeded when so many of us have failed. A good many times it is a simple matter when you come to see the actual thing with your own eyes. When I was full of enthusiasm over the Grand Rapids lettuce I succeeded in getting a glimpse of a greenhouse containing a full crop. This glimpse was only by the light of a lantern, and I was in the greenhouse only a few minutes; but that one glimpse was worth to me many dollars. I really felt glad when he agreed to let me have half a pound of the seed for $50, because I knew then I could grow such lettuce, or felt very sure I could, with the seed and the glimpse he had given me. Others succeeded in like manner, and now growing this lettuce is a great industry, and it is cataloged by almost every seedsman in the world. It comes somewhat natural for me to describe how things are done, in a way that will make others understand it so they can duplicate my success.

Now, in this matter of answers to prayer I have felt sure that thousands of people might triumph over their difficulties if I could make it plain to them how God answers prayer, and not only go through life rejoicing, but, more than that, go through *death* (with its pain and suffering), rejoicing in the hope of a risen Savior and Redeemer.

While these thoughts were in mind it was my privilege yesterday to listen to a sermon by Rev. S. D. Gordon, of the Cleveland Y. M. C. A. His subject was, "Hindrances to answers to prayer." You may be sure I was attention all at once. He first read promises from the Bible — a great number of them — including one similar to the one I have chosen for my text above. How should it come that with these great, precious, and wonderful promises, repeated again and *again*, so few professing Christians and church-members should avail themselves of that wonderful privilege of going straight to the Creator of all things with their troubles and perplexities?

Mr. Gordon said he would consider four reasons why our prayers are not answered. The first and most important hindrance is *sin*. This is a very little word, and many times people think it is a little matter — *little* sins. He said we were having a good deal to do just now with electricity. One who is in touch with the great Father above is like the man who goes to the switch-board. He moves a little key only a few inches, and perhaps a whole quarter of a city is all at once flooded with light as a consequence. He turns another switch, and lights another quarter, and so on. By means of this switch-board he moves a single lever, and electric cars are sent miles here and there; or a great factory is started running with all its wheels and powerful machinery. Now, these things are possible while the connections are perfect. If a wire gets down, the current is "grounded," and nothing can be done until this broken circuit is repaired. People talk about *little* sins. Suppose a man were working a telegraph instrument, and there is a break in the wire. The ends are separated, say, half an inch. Suppose he should express astonishment that so little a break as half an inch should prevent his sending a message. Dear friends, just one little sin entirely spoils the connection, and our prayers never reach the throne of grace. One might pray till doomsday, just as the telegraph operator might keep drumming on his key till doomsday. There can be no message or response until the mischief is repaired. Is not that Bible? David says, "If I regard iniquity in my heart, the Lord will not hear me." Once more I am sure you are all familiar with the passage where the Savior says, "If thou bring thy gift to the altar, and there rememberest that thy brother hath aught against thee, leave there thy gift before the altar, and go thy way. First be reconciled to thy brother, and then come and offer thy gift." One can not expect God to hear and answer his prayers while any little thing remains unadjusted. I once had an actual experience right along in this very line. I went to prayer-meeting and sat down; but I could not keep my mind on the subject of the meeting because I was thinking of a difficulty the foreman in our lumberyard had had with a man about some basswood lumber. I arose at once and left the meeting, planning to go in search of my irate brother. I met him very unexpectedly within a few rods of the church. I put out my hand to him smilingly, but he was not going to take it. He had just been consulting a lawyer. I told him we two would consult the same lawyer, and I would abide by his own lawyer's decision. I still think the lawyer was a little biased in giving his opinion; but I paid the difference, and got back to prayer-meeting before it was out.

Jesus has much to say about *forgiveness.* Suppose we call this the second obstacle. He not only says, "Love ye your enemies, and do good to them that hate you," but he bids us over and over to forgive as we hope to be forgiven. He tells us we must forgive and *forget* if we expect to be forgiven. That wonderful passage in the Lord's prayer ought to be sufficient; but for fear it may not be, the Savior seems to have expressed that same thought over and over again. A great many times we must suffer loss in this world. In the effort to lift humanity above human weakness, his admonition sometimes seems to be almost extravagant. For instance, he says, "*Blessed* are ye when men shall persecute you and revile you, and say all manner of evil against you falsely for my sake."

In this day of temperance crusades against the saloon-keepers, many ministers of the gospel have been severely persecuted and misrepresented, and falsely accused. I wonder if they all remember the wonderful promises to those who have been thus wronged. In the sixth chapter of Luke we are bidden to *rejoice* and *leap* for joy when we are persecuted just because we are taking a bold and decided stand against sin.

The question may come up right here, "Mr. Root, do you mean to claim that God hears *your* prayers because your life is free from sin?" Those who know me best are aware that my life is not free from sin or sinful thoughts; but I hope it is free from deliberate, willful sin. My heart is selfish, and the selfishness sticks out and hurts people, and does harm, I fear, wherever I go; and I am so selfish I am afraid I do not see it or notice it till somebody calls my attention to it. Mrs. Root may say, "Dear husband, you walked through the house with your rubbers on, and probably just after you had been in the muddy greenhouse; and there are your foot-tracks across my clean kitchen floor, just after it had been so nicely scrubbed." Then she takes the mop and pail, and cleans up the footprints, when I am sure she is *already* tired and weary. Perhaps I was in quite a hurry, and forgot to remove my rubbers, and I commence what is intended for an apology: "I did not mean to make any trouble, but I was in a brown study about something more important than muddy (or clean) floors."

There, do you see any selfishness sticking out when I try to tell the story? and is not selfishness *sin?* Most surely it was a sinful act of mine to be so much taken up with my own affairs that I forgot the dear wife, and did not think a word about her anxiety to have her home neat, healthy, and tidy-looking. Giving way to this kind of selfishness may ruin the happiness of some fellow-being, or result in loss of life. And I am just now reminded that Bro. Gordon said the third hindrance to answers to prayer is selfishness. Oh, dear me! When I come to think how many of my prayers have been selfish ones I am literally astonished and *amazed* to think that God could constantly hear and answer a single one. It is true, I had *some* good and generous thoughts in mind when I prayed over my troubles. When we got into that difficulty with the electrical machinery, I had in mind setting many needy people at work; and when I prayed to be delivered from the pain of toothache and earache, I asked for a kind of deliverance that I could consistently recommend and teach to all mankind; and I hope that through all my toil and all my prayers I have been keeping constantly in mind my *neighbors*, community in general, and all who read these Home Papers.

Many wives and husbands pray for unconverted companions. The Christian mother prays for her husband, perhaps day after day, and may be year after year. Why does she wish *her* husband more than other men to become a Christian? Naturally, because he *is* her husband, and it is right and proper that she should long for his conversion. If she wants him converted because it would be nice to have him go to church and sit by her side, because it would be nice to introduce him to her Christian friends, have him ask a blessing at the table, and all these things, her prayer may be a very selfish one after all; and if while she prays she indulges in various human weaknesses, and lets him see that she is petulant, ill-tempered, and the like, it is certainly not strange as the years pass that her prayer is not answered.

And just here, dear friends, is the great thought of this talk of mine to-day. I am anxious that each and all who come to me will have faith in my words, and may lead lives of prayer, because a life of prayer means and includes so much. All sorts of plans and devices have been invented to make people honest. The beauty of truth, unselfishness, etc., has been talked about and written about. Young people have been told, oh how many times! that honesty is the best policy, and yet they are not honest. We, each and all, have *agreed* that honesty is best; but we are not honest. We assent, but we do not act. We take the best side of the bargain. May be we do not all the time, but every little while that demon of Self gets in, and we take the better side, and let some patient, good-natured poorer brother in this world's goods take what is left. Education does not help the matter. Belonging to the church helps it some, but I have sometimes thought not *very* much. But how is it about beginning a *life* of prayer? Was anybody ever so stupid as to think that he could humbug God when he goes off by himself and kneels in his closet? Why, the veriest idiot that was ever born would not be so silly as to take words on his lips when none but his Maker could hear, that were *not* honest and true. The man who prays — that is, he who has felt the need of God — and goes into his closet alone to pray, is honest then if he ever is in his life; and if he expects God to hear and answer a great part of his daily supplications it will be because he has made those words in the 139th Psalm, 23d and 24th verses, his own: "Search me, O God, and know my heart; try me, and know my thoughts, and see if there be any wicked way in me, and lead me in the way everlasting."

A life of constant and honest prayer will not make us all at once unselfish, I am aware; but if we commence correcting and straightening up every little transaction as we look back over it, and see that it is not exactly fair, we shall soon get to living an honest life, and God rewards *all* such efforts. Suppose, dear friends, you are anxious about some young man — may be your own boy. He is away from home, and exposed to temptation. Wicked people are planning for his downfall, no doubt. Suppose you should find out that *he* is commencing a life of prayer — that he is working hard to establish a perfect, unbroken connection with the dear Savior. Suppose you learn that he is in constant communication with the great God above; that he has access to a "switch-board" connected with a direct line to the throne of God, and that he can at any minute telegraph the little prayer, "Lord, help!" and that he has learned to know and believe that help comes instantly — help sufficient so that he may withstand all the fiery darts of the evil one. How much would it be worth to know, dear parent, that your boy had established such a close relation with his Maker—a relation that is to go with him through life? Now, please remember I do not mean to tell you such a person will be lifted out of all troubles. The wise teacher does not do the work for the pupil. When I was quite a child we had a schoolmaster who always did the "sums" for the boys when they brought up the slate and pencil and said they could not get the answer. This master could cipher very fast, and many of the boys looked on with bright eyes while he made nice figures and did the work in good style. But a new teacher came. There was considerable grumbling among the boys because he did not do the work for them. I heard of it, and thought I would not go to the master. I was away ahead of the class with my Ray's Arithmetic, Part 3; but after working two days on an example I told the teacher I did not believe it was profitable for me to waste more time on it. I shall always remember how he spoke. "My young friend, I could work that out for you very quickly, and in one sense save your time and mine; but I think you can do it all right yourself if I simply ask you a few questions." He asked me just *one* question, and that one question revealed to me the fact that I had been stupidly away off the track, and I assured him that I should like to go to work and do it myself without any further help. He kept his eye on me, and when I had my answer all straight and clean in less than five minutes a sort of telegraphic communication passed between us just by our eyes, and he and I were warm friends ever afterward. His plan of teaching was more by quiet questioning than by doing any work at all himself. God, in his loving kindness, answers our prayers in much the same way.

Now, the dear brother who gave us that talk about hindrances to answers to prayer somewhat surprised and startled me in considering that fourth and last hindrance. He said something like this: "Dear people, I do not understand it, I confess; but I believe it is nevertheless true that Satan himself is permitted—at least to a certain extent—to hinder and delay answers to prayer. We pray for a loved one. The prayer would have been answered, perhaps a start was made in answering that prayer; but Satan interposed. Evil associates, perhaps, persuaded the young man not to go to prayer-meeting; and God *permitted* Satan to go on with this work." While my friend was speaking it occurred to me that one of the great hindrances in the way of having our prayers answered in doing away with saloons is that Satan *constantly* interposes his influence and work everywhere. He tampers with the officers of the law; he influences the judges; he gets control of the police and the police courts. Shall we give up to Satan? God forbid! Satan can go so far, but not beyond that limit. And *we* can hinder *Satan*. Our prayers hinder him, and are a restraint on him. We may never in this world be able to understand just why Satan is permitted to meddle with human affairs, and to hinder and delay the answers to the prayers of honest Christians; but God knows. We are weak, but he is mighty. "Shall not the Judge of all the earth do right?"

Many of our prayers, while not absolutely selfish or harmful, are of no particular importance. James says, "Ye ask, and receive not, because ye ask amiss," and we may call this still another hindrance. A little girl prayed every night for several days that she might be permitted some time in life to see Queen Victoria. Very likely she prayed with childish faith. Now, this is a sample of prayer where no particular good can come of it. The little girl was young, and Queen Victoria was very old; and it seems quite likely that such a prayer will not be answered. And more important than all is it that no particular good could come if it *were* answered. I do not suppose the little girl had even thought about any good coming from it. Jesus said, "If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you." If the same spirit that actuated the Savior while he was here on earth actuates and helps us, we shall be constantly seeking and praying for something for the good of all humanity. We shall be hungering and thirsting after righteousness, and that the gospel of Christ Jesus may be brought to all the world; and while we are in this attitude of heart, while it is the inspiring theme of our being, our petitions will be something for the good of humanity in general — not for self and for self alone, and not for idle curiosity or for some notion or fancy of the moment; and this hungering and thirsting after righteousness will not at all unfit us for building great cities and connecting them with great railways. It will not at all unfit us for extending electric wires and telephone wires to the home of the humblest person, for the constant thought will be of God the Father, and of his love to us his children; and thanksgiving and praise shall be to him for evermore. Before we can claim these promises we must be in *harmony* with God and his plans, and then shall come to pass that precious promise, "*Before* they call I will answer."

HIGH PRESSURE
GARDENING
BY
A. I. ROOT.

A POTATO THAT WILL NEVER SCAB; THAT $1000 OFFER FOR A BARREL OF POTATOES.

I have been holding my breath somewhat since that offer went out (see page 64, Jan. 15), for fear I should have to pay the money; but I began to breathe a little easier when nobody seemed inclined to take it up. The following is the nearest to it of any thing we have had; in fact, it is the only communication I have had on the subject:

> I will send you by mail one potato. I don't know what the name is. I bought them of a man by the name of Newel, so I call them "Newel." If you know the right name, let me know. If you want more of them I will send them. I have had them for five years. They have never shown any sign of scab since I have had them, and all other varieties have scabbed. I got five varieties of you three years ago, and I have discarded all of them. The Newel has gone through wet and dry, hot and cold, bugs and every thing else, and has come out on top every time.
>
> Tekamah, Neb., Feb. 2. J. S. ROBINSON.

Well, the above is pretty good. If these potatoes have been grown for five years, and have never shown any sign of scab, it certainly looks promising. Now, when our great seed and plant men get something of that sort, they usually buy up the whole stock so as to monopolize the market; but I do not believe I want to do that way. We want these new potatoes to have a thorough test in widely different localities; and I would suggest that friend Newel offer them for sale at such a price as he thinks will be fair; and if it really turns out to be a nice potato, a good yielder, one that never scabs, the $1000 will be forthcoming, for it will be worth a million or more to the world, even if *I* do not get the profit of it. There may be some question as to who should have the $1000. My intention was to give it to the man who originated and brought to notice the potato. And that reminds me that there is an advertisement, in this issue, of potato seed for the benefit of those who wish to introduce new varieties. One reason why I believe that a scab-proof potato can be produced is, there is a difference in the potatoes we have. Last fall we grew several bushels of Rural New-Yorkers that were not scabby a particle, while a strip of Carman No. 1, right alongside, were scabbed badly; and my impression is that the Rural New-Yorker is, as a rule, less liable to scab than almost any other potato. Perhaps I might add, for the benefit of those who wish to go into the business of growing new varieties of potatoes, that it is like growing new varieties of strawberries. If you should plant a whole acre of seedlings, and as closely as they could stand (several growers have done this very thing with strawberries) you might watch and care for the whole lot, and find, after you had got through, not one of them was in any way superior to the berries or potatoes we have already. A good many kinds are "trotted out" every season, with the claim that they are *away* ahead; but look at the kinds that have been boomed and then dropped out of sight, say within the last 25 years, if you have been watching plant and seed catalogs than length of time. Will friend R. please tell us more about that scab proof potato? Is it early or late? How does its yield compare with others? What is its quality for table use? I judge the potato to be an early one, as one sent me was already sprouted; and I wish to say that it is a very handsome potato.

Since the above was put in type we have received the following additional information from friend Robinson:

> *Mr. Root:*—I have about 30 bushels of those potatoes. I could not take less than 75 cts. per bushel, for I believe fully half of the potatoes in this part of the country are frozen. It has been extremely cold here this winter—26 below zero yesterday morning by the government thermometer, and 30 by others.
>
> As to the name, I could not find out. An old gentleman by the name of Newel, living in Iowa, was visiting a son living here on a farm, and the old man came over and brought a bushel of those potatoes; but his son had moved to town, and had no place to plant them. He told me about them, and what wonderful potatoes they were. He said he paid $2.00 for the bushel. I paid him $2.00 for about two-thirds of the bushel. The Newel family have all moved away, and I don't know where.
>
> Tekamah, Neb., Feb. 10. J. S. ROBINSON.

DISEASES OF THE TOMATO.

This is the title of a bulletin sent out by the Florida Experiment Station. It is written by Prof. P. H. Rolfs, whom it was my good fortune to get acquainted with while I was in Florida. This bulletin gives most thorough directions for treating all diseases of the tomato, besides discussing the matter of insect enemies. Prof. Rolfs recommends the Bordeaux mixture for the black rot, and says if it is made right, and applied with sufficient thoroughness, it will surely kill the fungus and allow the tomato to start out with a new and vigorous growth. If you want the bulletin, write to the director of the Experiment Station, Lake City, Fla. It is furnished free to all Florida people, and I presume it will be sent to anybody if a stamp is inclosed. This one little bulletin may be worth hundreds of dollars to anybody who makes tomato-growing a business.

THE BENSON RENOVATOR COW PEA.

On pages 668 and 705 for last year I made favorable mention of Benson's new cow pea. Since that time I have been watching the *Practical Farmer* very closely, especially Prof. Massey's answers to questions in regard to cow peas in general; and my impression is that there are early varieties of cow peas already well known in the South, that possess nearly all of the desirable qualities of the Benson pea. Of course, I am not the one to judge, as I am comparatively unacquainted with the many different varieties of cow peas grown in the South. Since friend Benson has used in his circular what I put in GLEANINGS, a good many inquiries have come in to me. Here is one of them:

> I am very much interested in the renovator cow pea. You experimented with it last year. Can you not give to us fuller particulars in regard to your treatment of and success with the pea? Did you plow it under? If so, how did you manage? Did stock eat the pea hay well? When did you plant, and when did you harvest? Did the peas mature fully?
>
> Battle Creek, Mich., Feb. 2. W. H. LITTLEJOHN.

I did not plow the vines under, any of them; in fact, we left them until they were killed by frost about the first of November, to allow as many of the peas as possible to ripen. I am inclined to think the strain is not yet perfected, for different plants blossomed at very different times. Some of them were covered with pods that were dry, while others were full of pods all green, and still others hardly yet in bloom. All the seed we saved was from the earlier ones. When frost caught them the whole plot was covered with a great mass of vines and foliage. I did not plow them under, as I got the impression they would be worth just as much to be plowed under in the spring. I tried to feed them out to our horses, but they did not seem to take to them. My impression is, it was because they had not learned how. I am sure cows will eat them, and I have no fear but that horses would also after they have acquired a taste for the pods filled with the mature peas. I did not record the date they were planted, but it was some time in June. With the chance they had, they made a most remarkable growth; but I have seen very much of this same rampant growth from the cow peas we obtained from the South, only these latter did not produce ripe seed in our locality.

SWEET CLOVER, AND WHAT IT IS GOOD FOR.

THE above is the title of a 12-page pamphlet that we are prepared to furnish free of charge to bee-keepers or anybody else interested in this kind of clover that grows *better* on ground so poor that nothing else will grow on it. The leaflet is made up of suggestions from bee-keepers and others who are well acquainted with the clover. It also discusses fairly, I think, the question as to whether sweet clover can be called a noxious plant under any circumstances.

THE KEELY MOTOR.

Just about the time GLEANINGS was started, the scientific world was full of excitement in regard to the new force discovered by Keely, that was to supersede steam, electricity, and every thing else heretofore known. Almost every periodical in the land boomed Keely as one of the greatest of modern inventors; but the *Scientific American* denounced him first, last, and always. They said he was a fraud and a humbug, and that he dared not make a public exhibition of his motor, in a way that honest discoverers do. He gave some exhibitions, it is true; but nobody was permitted to come on to the stage, nor would he come out in front before people. He stood by a little window keeping himself a good deal out of sight. The *Scientific American* declared the wonderful results he displayed were done by the power of compressed air; and when they suggested proving their position by exploring the premises he pretended to get into a towering rage. Notwithstanding, men of great wealth invested their money in Keely stock, and he became almost if not quite a millionaire before he ever gave the world any tangible result. For 25 years he duped innocent people who happened to have capital. One of his largest victims, and one of his best friends through all these years, was a lady. So well was his secret guarded that the papers declared it had died with him, and some even now pretend the world had suffered a great loss. You know GLEANINGS has had considerable to say about people who possess wonderful secrets that they will divulge only for a certain sum of money; and GLEANINGS still insists that no good thing ever came along in this line. Keely succeeded in humbugging people, and making at least a large part of the world believe he was an honest inventor, while he lived in all the affluence and comfort that money could procure during those 25 years.

While he was living nobody succeeded in gaining an entrance to his laboratory and workshop; but after his death, what then? I believe there was some little effort made to cover up his hypocrisy and rascality, even after he died; but a reporter from the *Scientific American* succeeded, with several scientific men, in having the whole premises opened up and explored; and in a recent issue there are half a dozen photographic views exposing the whole thing. In a concealed cellar under his laboratory was an immense steel sphere with strength almost if not quite able to resist the recent tests of cannon at Sandy Hook. From this tremendous reservoir of compressed air Keely had tubes leading to his humbugging machinery. With air under a pressure so that it was forced with a power almost equal to that of gunpowder, no wonder he astonished people, and then called it "etheric vapor," and made a pretense that this astonishing power was evoked from "vibrations," because he drew a fiddle-bow across the edge of a tumbler! In addistition to the discoveries, a man has been brought forward who helped him make his humbug apparatus. Keely robbed rich people—people with immense capital, as a rule. The Electropoise humbug, which it has been our privilege to so thoroughly ventilate, was a little different, in that the owners robbed *sick* people, and are still taking the hard earnings of poor women who do washing for a living, providing they can find victims who do not happen to be posted. And by the way, dear friends, what do you think of a man who would live on other people's earnings, enjoying every thing that money can purchase, with such a prospect before him as Keely must have had just before he died? He evaded the truth a long while; but *death* brought his iniquity to light. What shall it profit a man if he shall gain the whole world and lose his own soul?

Many have been the days when I thought I'd write a few encouraging words as to how I appreciate GLEANINGS. Mr. Matthews took it quite a while before I took notice of it. One Sunday evening I happened to pick up a number. I can never tell how much I enjoyed reading your Home talks especially. While I am no flatterer, I believe in letting one know how much good he is doing in this life—not after he is gone from this world where they know nothing of it.

MRS. S. D. MATTHEWS,

Hamilton, N C., Jan. 22.

HEALTH NOTES

BY A. I. ROOT

DOCTORING WITHOUT MEDICINE.

Almost all my life I have been troubled more or less with sore feet. I presume one reason is, that during my childhood I had my feet frosted. Since then I have been troubled with chilblains in winter and corns in summer. About a year ago what seemed to be a corn or chilblain, or both together, became very troublesome. It started first near my little toe, and finally became so swollen that it not only made me lame, but it affected my whole right side, and made me about sick. I limped up to the doctor's office, and asked him if he would feel imposed upon if I wanted him to doctor my *feet*. He replied something like this:

"Not at all, Mr. Root. On the contrary, I am always glad to do any thing I can to relieve any kind of pain or suffering."

After he had taken a look at the inflamed spot near my toe he said he could fix me out all right, but it would take a little time. First, I was to get an old boot, or, better still, an old shoe, and cut a good-sized hole through, right over the inflamed spot. Then I was to give that part of my foot plenty of air. I ventured to object, on the ground that I could not go to meeting attired in that fashion.

"Oh! yes, you can go to meeting. Wear a black stocking—something just as near as possible the color of your boot or shoe, and few if any will notice it; and just as soon as your foot gets well enough you must give your feet more ventilation. Corns and chilblains are both Nature's cry for more air. Many people suffer greatly because they do not give their feet ventilation enough."

"Why, doctor, you don't mean to say that my feet want to breathe, do you? I think I have heard of people going barefoot in order to give their feet a chance to breathe, but I did not know that mine were of that kind."

"Well, I guess you have got it about right, Mr. Root. Our feet do need to breathe. Few people can stand it to wear rubber boots, because they are so completely impervious. I believe you have been wearing boots mostly in winter time. You want to get rid of your boots, and buy some shoes that lace very far down, say as near to the toes as possible; and leave the lacing loose enough so the air can get in. With this foot that is so inflamed and feverish you really must have that kind of shoe. Get a bicycle shoe that laces away down. If your feet get cold, wear coarse porous woolen stockings; then if your ankles are cold, have some woolen leggins; but let your feet *breathe*."

"Why, doctor, I am afraid I shall have to take back some of the spiteful things I have said about toothpick-toed shoes. From what you say, that gable-end air-space out in the point of the toe has a method in it, after all."

Well, I followed the doctor's advice, and, although almost two years have passed, I have not had any chilblains at all, and my corns have not troubled me to speak of. I used to imagine that I must have boots in winter to keep my ankles warm; but now I really enjoy wearing my bicycle shoes all winter, protecting my ankles with extra woolen covering during severe weather. While visiting with my friend Vankirk, in Washington, Pa., we were talking over this matter, and he said he had read somewhere that Abraham Lincoln was in the habit of slipping off his shoes when he was writing at his desk, giving his feet a breathing-spell. Now, if I remember correctly the doctor did not give me any medicine at all; but I would ever so much rather pay a doctor for giving me sensible advice like the above, than for dosing me with drugs; and his little talk about ventilation for the feet did me so much good I am glad to suggest the matter to others who may be sufferers like myself. For a good many years I used to advise everybody indiscriminately to go barefooted in summer, as a rational cure for troublesome corns, and Mrs. Root used to remonstrate. She asked me if I wanted to see *her* going around barefoot. I told her I would rather see everybody going barefoot than to see them suffering as I suffered from troublesome corns. My favorite way of washing my feet in the summer time is to wade through the lawn when the grass is covered with a heavy dew. You see this gives ventilation, coolness, and a water bath (of *pure soft* water) besides. Now, the doctor suggested to me a way of ventilating the feet without going barefoot. By the way, I have almost all my life objected to shoes that lace up, because it wastes so much valuable time fastening with shoestrings; but I think now I would rather fuss with shoestrings than to have my temper spoiled by troublesome corns. Wouldn't you?

Years ago our good friend Orange Judd, of the *American Agriculturist*, recommended changing the shoes, and, if necessary, the stockings too, during the day, and taking another pair. He said it did the shoes good to give them a rest. My impression is it did good by giving the feet a breathing-spell rather than giving the shoes a resting-spell.

Our Roll of Honor.

When I made my offer of GLEANINGS a year free, and a little present besides, to those who had taken it 25 years or more, I made a rough guess that there might be 50 among our present subscribers who commenced with Vol. I. No. 1. But to be on the safe side I told the boys to print 200 cards to send with the little paper-weight. Well, the 200 cards are gone, and still the names come every little while. Why, it almost begins to look as though every one who subscribed during that first year is still a subscriber; and I confess the thought has been to me both encouraging and inspiring. May God bless you, each and all, for standing by your old friend A. I. Root during all these years.

I think I took GLEANINGS in 1879. Perhaps it is on your books; but I *do* know that I have paid mostly from the bees for a nice farm of 70 acres, and a new $1200 house and $700 barn, windmill, and waterworks. I consider my success with bees due to Gleanings. One year when I had 20 colonies I cleared $25.00 per hive, or $500. I have kept bees since I was 17 years old, and taken Gleanings since I was 19.

Calamus, Iowa, Jan. 21. D. Wagner.

In looking over the time from 1873 to 1899, during which Gleanings has been a monthly (and later a semi-monthly) visitor, it brings back many happy and pleasant recollections and thoughts that I have enjoyed during all those years; and it also brings sad recollections of many who were its correspondents years ago, who have passed over to that great beyond; and soon, too, we the remaining ones of the 1873 subscribers will also be numbered with those who have preceded us. H. H. Brown.

Light Street, Pa., Jan. 25.

Dear Mr. Root:—As you make up a round-up of your old friends, I wish to be counted among them.

I do not agree with you on all subjects, but I do follow some of your advice. You told us once that, in case of disaster to the bees, we should retreat in good order, like a general losing a battle, and be ready in good order for the next season. But with me the last *ten years* have been mostly on the retreating order, and always retreating wears the best general out. I wish also to thank you again for favors received by me in our past dealings, as extending credit or doing better than advertised. Aug. Leyvraz.

Francis, Fla., Jan. 26.

Wife says I began in 1874 with my bees in the chamber windows of my home in Toledo, Ohio. I had been a reader of Gleanings previous to that time, and possess almost all the back volumes up to the present. My first foundation-mill was made under my supervision. Electrotyping both sides of a sheet of Root's foundation, and sweating it on to a set of photographer's rolls, I used it for several years, and then purchased one of your $100.00 12-inch machines. My first visit to Medina was for that purpose. I think it was the same year you erected your new building. Time has dealt kindly with me through life's pathway; but during my earlier years of bee keeping it was more or less rough and rugged. When we learn of the extreme suffering experienced by the poor in the North we wish all could enjoy the climate of Florida as has been our privilege for the past 15 years.

New Smyrna, Fla., Jan 13. John Y. Detwiler.

I am one of the number that have taken Gleanings since Vol. I No. 1, and have all the numbers now except a few of Vol. III., and occasionally one I have loaned to some one, that has not been returned. When my father was about my age he had one of the best taverns in Western New York, and kept several wagons running, buying hay, corn, oats, etc., to feed the immense droves of stock that, night after night, put up with him. Just like cutting a thread, his whole business was killed when the railroad was completed from Buffalo to New York. Just now my business (bee-keeping) is cut off just as completely by the timber men. My honey crop, that has been from 500 to 700 gallons per year, was 60 gallons in '98, and I am not certain but I may have to feed the equivalent of the most of that to bring them through the winter. Poplar has been almost our only source, and it is being cut out very rapidly, and there is nothing to take its place. It looks as if one bee-keeper must quit the ranks or move. G. W. Gates.

Bartlett, Tenn., Jan. 2.

Our minds do seem to run nearly in the same channel in many things; and our ages are so nearly alike I thought I must write you. I do not know how long I have taken Gleanings. The oldest full volume that I find is 1876. I think I had parts of volumes before that. Since '76 I have taken it all along, besides others. I have a small load of bee literature. I have your photo with Blue Eyes on your lap; also house-apiary with, I suppose, Ernest and Maude on the stairs. I do hope Maude may get well again. Please tell her so for me. I have to wear a "harness" too.

I am 60 years old. My father died when I was 2½ years old, and left mother with three little boys. I reside in the old home. It is back among the country hills of the town of Union. I am the only one left of our family. We have two children, both married. Our boy lives with us. They have four, which makes eight in our family.

I keep bees and poultry. I have kept bees 30 years. I began with one box hive. I work them barehanded. Our location is poor. Were it not for buckwheat we could not keep bees here. My present stock of bees consists of 140 hives, all kept at home. I winter indoors. If I were to start anew I might try chaff hives and outdoor wintering. I have never met with any serious losses in bees. You will probably smile when you read this part. I have some of the American hives gotten up by H. A. King, of Ohio. The bees in them seem to be as hardy as Concord grapevines.

Hooper, N. Y., Dec. 31. D. F. Lashier.

I have been a subscriber from the first quarterly you issued, and have kept them all. I have also taken the *American Bee Journal* since 1867 regularly, and received a few copies before the war, during which time it was discontinued. Since my earliest recollection I have liked bees. Then my folks kept them; and how I was delighted when swarms came out! I would get in the midst of the swarm, and often bareheaded, in spite of orders to keep back; and how good the honey tasted in those days! My father, in the summer of 1856, gave me a swarm, and I assure you it was prized and looked after with interest We then lived in York State. In the fall of 1857 we came west, and I sold my two swarms and father sold all of his. In the spring of 1860 I bought a swarm in a box hive in this place, and have not been out of bees since. Since 1866 I have kept my bees in movable comb hives. Gleanings has at all times been a welcome visitor, and I have much admired the energy of its founder, from the windmill days up to the present time. His enthusiasm from the time he wrote in the *A. B J.* as Novice has been pleasing to me. When the bee-fever struck me I sought after and received all the books on bee culture that I could hear of, printed in this country, and also read all translated from foreign writers that I learned of. I have taken nearly all the bee-journals of this country till within a few years ago. I received five different ones for several years; all but two are now of the past. I have dealt with the Medina firm for many years, with satisfaction.

I wish Gleanings, its founder, and all members of the firm, well. I feel quite well acquainted with the Root family, although I have not met any of them personally. I think much of all the departments in Gleanings They are of much help to its readers.

Our honey crop has been all the way from nothing (one season) up to 13,000 lbs., an average of 153 lbs. per colony, about two-fifths comb honey—the best year we have had in all. F. A. Snell.

Dundee, Ill., Jan. 4.

I looked up a file of old bee-journals that had not been examined for 15 or 20 years. I found most of the early numbers of Novice's Gleanings in Bee Culture, the oldest bearing date Feb. 1, 1873. I must have commenced taking it at the beginning, and I do not think I have ever missed a number up to the present time.

But this was not my first acquaintance with A. I. Root, or, more properly, with his writings. In 1867 I commenced taking the *American Bee Journal*, published in Washington, D. C., and edited by Samuel Wagner. Mr. Root was then contributing a series of articles to that journal, one or more appearing in every number, at first over his own name, and afterward over the *nom de plume* of "Novice," which he kept up for several years It was my interest in these articles, and my liking for the manner and spirit of the man, that induced me to lose no time in subscribing for his paper.

It would indeed be pleasant to have a meeting of some of these old subscribers to Gleanings and contributors to our bee-journals of some 25 years ago, say at Medina, some time next summer. Many of them have, no doubt, left this stage of action, and have gone to join the great silent majority. But those who may be left might get together then.

While hunting up the first volume of Gleanings I found a file of the *American Bee Journal* from 1867 to 1873, both inclusive, which brings up many reminiscences of the contributors and the subjects then discussed by them in it and in Gleanings about the same time. It does look, as you say, as if all the most important things in relation to bees and bee-keeping were pretty thoroughly gone over. There was a new era in bee-keeping—the invention of the movable-comb hive, the introduction of the Italian bee into this country, the discovery of the centrifugal honey-extractor, etc. Of course, these matters were largely discussed. But the natural history of the bee from a scientific standpoint, and the various subjects arising therefrom, were thoroughly studied and discussed, and some of them settled.

The hive question, with new inventions and many so-called improvements, was largely discussed; but it seems that it is not settled yet. The writer took some little part in this discussion in 1870, and among his reviewers was C. P. Dadant, then quite a young man. And now, after an elapse of nearly 30 years, we find him hammering away in GLEANINGS for the past two months *along the same line*—not settled, but a great deal of the rubbish has been cleared away.

THADDEUS SMITH.

Pelee Island, Ont., Dec. 26, 1898.

I commenced bee-keeping April 10, 1877, with one stand, and have made bees pay. I have 130 stands at present, and have produced several tons of comb honey. I have taken GLEANINGS right along since 1878.

Oakley, Ill., FRANK BAKER.

I have taken GLEANINGS these many years. I don't remember whether I have taken it since the first number or not; but I remember well when it was printed by wind, since which time it has been printed by steam and edited by wind; but it has been a very genial and salubrious kind of wind, however—any thing but a dead calm for me. JOEL HILTON.

Los Alamos, Cal., Jan. 16.

I took GLEANINGS before Blue Eyes was born, for I remember reading about her. We do not want a year's subscription granted us; for if it had not been for GLEANINGS we should not be to-day where we are. I should like to have Mr. Root visit us and see our grand new greenhouse we have built. It is 110 feet long and 30 feet wide. J. W. NICODEMUS.

Newcomerstown, O., Jan. 11.

I think I am among the first to take GLEANINGS. I can remember your rejoicing over the advent of Blue Eyes. I have been reading it very nearly ever since. It always has been a welcome visitor. I like your Home Papers, Notes of Travel, and J. H. Martin's Rambles. The *American Bee Journal* is one of my favorites with GLEANINGS; and may they prosper. I was born in Jefferson Co., O., Feb. 11, 1828.

Nevada, Iowa. W. K. SMITH.

That souvenir carries me back in mind nearly a quarter of a century, when GLEANINGS was a 25-ct. publication, less than two years old, but to my mind it was very large for its age. It evidently possessed wonderful vitality and a large amount of brains, as is evidenced by its progress up to the present time. Although I am past eighty years old, my interest in GLEANINGS does not decrease. T. H. PEAVEY.

Epworth, Ia.

A. I. Root:—I have not been a subscriber nearly as long as some of the veterans, but I subscribed soon after hearing of GLEANINGS and at one time it saved me ten dollars in preventing my buying a farm-right to make the Golden hive, which GLEANINGS showed up to be a humbug.

Also am well pleased with the stand you take in the Hall water-cure, Electropoise, and other like humbugs, and very much enjoy your Home Papers, Notes of Travel, Rambler's letters, Miller's Straws; in fact, all of it. I want Ernest and the boys to give the "old man" all the space he wants; and when he travels have him take more time. J. J. MCGOWAN.

Swan Quarter, N. C., Feb. 5.

I first subscribed for GLEANINGS in 1879, having seen your advertisement in the *American Agriculturist* ("Friends, if you are in any way interested in bees or honey," etc.). I was 20 years old at that time, and have kept bees ever since; also had bees one year before that. Since my marriage, 12 years ago, I have made bee-keeping my main business, with varying but usually excellent success. My largest crop of honey was taken in 1889 from 73 colonies, spring count, and was 13,000 lbs. extracted honey. I have been greatly indebted to GLEANINGS for my success. Have purchased most of my supplies from you. I have always read and appreciated the Home Papers. On one occasion I read one for a sermon in our church when our pastor was away. For a good many years I saved and carefully put away all my GLEANINGS, but have given away a good many to neighbors; also sold some numbers to you in answer to your call for back numbers. G. H. POND.

Bloomington, Minn., Jan. 9.

I have had as many as 150 colonies of bees to care for, the greatest yield in one season being 7000 lbs. of honey. I bought sections of you when you ran by windmill power, and rejoiced with you when you put in your first engine. I have drifted west, and am building up a new apiary in Oregon. People here are getting interested in the bee business very much; almost every one has a few colonies in box hives; but a great many are transferring to movable-comb hives, and are becoming interested in progressive literature.

I join the Editor in wishing we could all be together and have a big talk, and I join him too in his opposition to vice and immorality. JESSE W. THORNTON.

Oak Creek, Ore., Jan. 10.

It may interest Mr. A. I. Root to know that I have read GLEANINGS continuously since 1876, though I have not taken it myself all that time, and so am not entitled to any prizes. Two neighbor bee-keepers' and myself for several years cast lots to decide which we would take, and took about all the bee-papers published in America, and exchanged for reading. But, what is of more account, I became interested in the gardening articles through the enthusiastic, entertaining happy way in which they are written, and it is very largely through their influence that I now have a fruit and vegetable farm of 40 acres, and a very congenial occupation and better health. Although the place is young yet, it already yields a good living for my family and is yearly becoming more profitable. "Calamity howlers" get no sympathy with us.

Covert, Mich., Jan. 23. H. D. BURRELL.

Mr. Root:—Reading the letters of the veterans makes my mind run back to about 1876, when by some means I got a copy of GLEANINGS. At the time I had twelve or fifteen colonies of bees, and that was about all I had of this world's goods. I remember how I read and re-read it. Then I sent for back numbers and subscribed for GLEANINGS. Then I did get interested in bees and GLEANINGS. I talked bees and GLEANINGS to my friends until I actually got people to subscribe for it, who were not interested in bees.

Say, friend Root, do you remember the first order I gave you for goods? I had to ask you for credit, as I was so desperately poor; but I told you I was honest, and would do as I agreed. To-day I own a farm of over two hundred acres, and do not owe a dollar on it, just outside of the town of Syracuse; and, by the way, it is one of the best farms in Northern Indiana. I do not say this boastingly. I have the bees to thank for it. For fifteen years I made bee-keeping a specialty—did nothing but attend to my bees. That is when I made the most money in my life. Several years I sold over one thousand dollars' worth of queens per year, besides bees and honey I sold. I remember how I longed and wished for the time when GLEANINGS would come; and when it did come, what a feast! and how I did enjoy reading it! Those were happy times. How I enjoyed the Home Papers! and how vividly I remember some of the first ones to this day, especially those written about yourself. You do not know how much good they have done me. My bee-keeping life—that is, when I made bee-keeping a specialty—has been the happiest part of my life. I still keep bees—about 100 colonies. By the way, I have some fine registered stock, both cattle and sheep; but I have nothing on the farm that pays as well for the money invested as my bees. I attribute my success in bees to always trying to apply the golden rule.

Syracuse, Ind., Jan. 4. I. R. GOOD.

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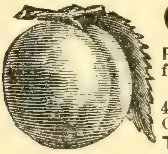

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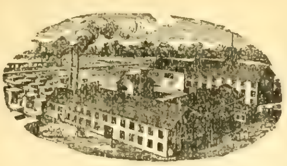

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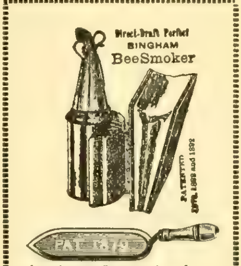

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Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

In writing, mention Gleanings.

SEND FOR MY PRICE LIST of high-grade strawberry and blackberry plants. Special prices on orders received for berry baskets and crates before April 1st, 1899. H. H. AULTFATHER, Minerva, O.

The Bee-keepers'

REVIEW

for December shows in its frontispiece "The Neatest Apiary in Michigan," and the owner of this apiary, or, to be more exact, his son, contributes an article upon "Beauty and Neatness," in which he shows that they are of more importance in the apiary than they are generally given credit for.

Mr. Harry S. Howe, Mr. W. L. Coggshall's "lightning operator," tells how he reads the bee-journals—what is wanted in them, and how to get the most out of them.

There is an editorial of nearly three pages upon "Success." It is not a lot of dry platitudes and generalities; it is full of freshness and vigor, and of illustrations drawn from the editor's own experience. The reading of it may change your life from the dull common place to one of unbounded success.

Then there are the "Criticisms" of Mr. Taylor; the "Views" of the inimitable Hasty, the "Extracted Dept.," etc.

The Review is $1.00 a year; but if you are not a subscriber, you can, for only $1.80, have your subscription to GLEANINGS renewed for one year, get 12 back numbers of the REVIEW, and then the REVIEW for all of 1899.

W. Z. HUTCHINSON,
Flint, - - - Michigan.

In writing, mention Gleanings.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

In writing advertisers, mention GLEANINGS.

Our Factory is the Largest,

Our Facilities are the Best.

We are Located

on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

We kiln-dry our Lumber, and Manufacture

BEE-HIVES, SECTIONS, AND SHIPPING-CASES.

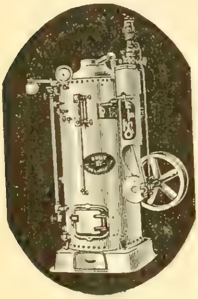
We Handle Bee-keepers' Supplies. We are Prompt Shippers.

Write for catalog.

Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.

A FARM POWER

IS A NECESSITY



in the practice of modern agriculture. They are **needed for shelling corn, grinding feed, cutting fodder or ensilage, separating cream, wood-sawing, pumping water**, and a host of other things.

LEFFEL ENGINES and BOILERS

are clearly the best for the purpose. Either **Upright or Horizontal;** from 3 h. p. up. Safe, simple, easy to run. They are quick steamers, and require little fuel. Pamphlet with prices on application, stating size power wanted.

JAMES LEFFEL & CO., Box 44, Springfield, O.

In writing, mention Gleanings.

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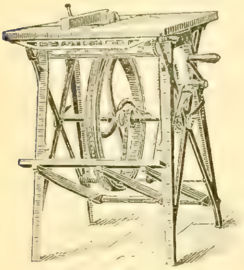
Hand and Foot Power

Machinery.



This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, boxes, etc. ***Machines on trial.*** Send for illustrated catalogue and prices.

W.F.& John Barnes Co.,
545 Ruby St.,
Rockford, - Ill.

In writing, mention Gleanings.

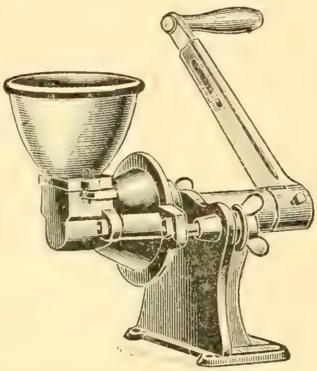
Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

For Sale. **20 Strong Colonies Hybrid Bees,** Dovetailed hives. Most of the frames wired combs, straight, in good condition; $2.00 each.
M. GARRAHAN, Kingston, Pa.

A due bill for 10 cents' worth of plants for **10** or more good names of fruit growers. Handsome catalog free. W. N. SCARFF, New Carlisle, O.



Do It Your-self.

Be your own Miller....

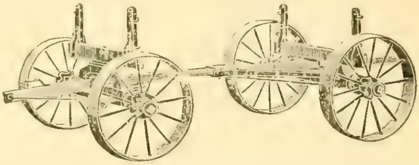
Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**

Address **The Frank Machinery Co., Buffalo, N. Y.**

In writing advertisers, mention GLEANINGS.

BUY THE BEST.

If you want the best low-down wagon you should buy the Electric Handy Wagon It is the best because it is made of the best material; the best broad-tired Electric wheels; best seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red, and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 95, Quincy, Illinois, for their new catalog which fully describes this wagon, their famous Electric Wheels, and Electric Feed-cookers.



SPECIAL NOTICES BY BUSINESS MANAGER

CATALOGS.

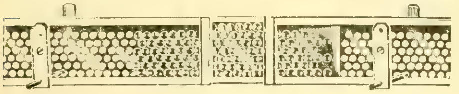
We are sending off catalogs as fast as our press can turn them off, and hope to complete the list before the end of March. Just as we go to press we are printing our wholesale lists for dealers and jobbers. If any who are entitled to these do not receive one before March 1st let us hear from you. The wholesale list is only for those who keep supplies for sale, and the first order must be for at least $50.00 worth or over.

CARLOAD SHIPMENTS.

Since our report a month ago we have shipped fifteen carloads as follows: One car to our Northeastern branch at Mechanic Falls, Me.; one to Chicago; one to Philadelphia, and one to Syracuse, N. Y.; a second car to W. S. Pouder, Indianapolis; one to Jno. Nebel & Son, High Hill, Mo; one to Jos. Nysewander, Des Moines, Iowa; one to D. M. Edwards, Uvalde, Texas; one to M. H. Hunt & Son, Bell Branch, Mich.; and five more cars for export, besides a car of boxes. Within the next month we expect to ship fifteen cars more, orders for which are already entered.

KREUTZINGER'S ENTRANCE-CLOSER.

This device was recently illustrated and described by the inventor in the *American Bee Journal* It is made of zinc having ⅛-inch perforations bound with tin; is adjustable from 11⅞ to 14⅛ inches long for 8, 9, or 10 frame hives, and for entrances from ⅜ to 1 inch deep: is firmly attached to the hive by tightening two screws, which can generally be done with the fingers. The entrance closer is used for moving bees or keeping out mice, or for any other purpose you wish to shut the bees in, and still leave ventilation. Price 25c each, postpaid, or 20c with other goods; $1.85 for 10; $17.50 per 100.



Special Notices by A. I. Root.

FRESH INVOICE OF NEW SEEDS, ETC.

YORK STATE MARROW BEANS.

Notwithstanding the scarcity of seed beans, I found six bushels of very nice ones, grown by a neighbor, from seed from our own furnishing. Quart, 10 cts.; peck, 65 cts.; bushel, $2.25.

ROCKY FORD MUSKMELON.

We have just received 10 lbs. of the finest strain of seed, direct from one of the best melon-growers in Colorado, guaranteed to be all right. Price: Packet, 5 cts.; ounce, 10 cts.; 1 lb., $1.40. If wanted by mail, add 10 cts. per lb. extra

ALSIKE CLOVER.

First, we have just bought 47 bushels of about the handsomest alsike clover we ever got hold of—remarkably clean, and free from any seed of any other sort; bought direct from the grower; and yet we are enabled to make the lowest price we ever sold alsike as follows: 1 lb. by mail, postpaid, 20 cts.; by express or freight, 1 lb., 12 cts.; peck, $1.40; half-bushel, $2 75; bushel, $5.25. The above price includes sack to ship in.

SEED CORN.

Grown especially for us. Four bushels of Kendel's Giant. Quart, 15 cts.; peck, $1.00; bushel, $3.50. We have also a good stock of Ford's Early, Stowell's Evergreen; Late Mammoth Sugar, and Improved Shoepeg, by the same grower as above. Quart, 12 cts.; peck, 75 cts.; bushel, $2.75. All the above seeds may be fairly called "home grown." I know who grew them, and that they are of last year's growth. Where we get clear out, and are obliged to go to the wholesale seedsmen in the great cities, we do not know so well what we are getting as when the stuff is grown in our own neighborhood.

H. A. MARCH'S SNOWBALL CAULIFLOWER AND JERSEY WAKEFIELD CABBAGE.

There is just now a big call for March's justly celebrated strain of Snowball cauliflower and Jersey Wakefield cabbage. Friend March has sold out, and will not have any more till another season. We have just 2 lbs. of the cauliflower seed. Price, ⅛ oz. 25 cts.; ¼ oz., 40 cts.; oz., $1.50. We have 6 lbs. of the Wakefield cabbage, *stock seed;* oz., 20 cts; 1 lb., $2.50. If you want the H. A. March strain, and no other, you had better order soon, before it is gone.

BEST OF ALL BEANS.

We have about two barrels of these, raised two years ago, that we did not intend to offer for seed; but as new ones are so exceedingly scarce, and as these germinate quite fairly when tested in the greenhouse, we offer them at about ½ the market price as follows: quart, 8 cts.; peck, 50 cts.; bushel, $1.75. Perhaps I might explain that this is a green-podded wax bean—one of the staple varieties in Florida. There is some complaint that it does not suit as well here in the North; but we like them very much, both as a string bean and as a shell bean. They are worth what we ask for them, for table use.

KIND WORDS FROM OUR CUSTOMERS.

Your seeds are much below others', except in quality, which is A No. 1. A. C. BUGBEE.
Lochiel, Ind.

Gleanings is a help to me in many ways—as a beekeeper, a gardener, a farmer, and a Christian.
Atco, N. J. C. E. VARNUM.

I find the A B C of Bee Culture to be a first-class beebook. I regret there is no Spanish edition of it.
San Francisco, Chile. A. E. COX.

I am much pleased with the hives. I wonder how you can do so much first class work for so little money.
North Weare, N. H. J. A. WOODBURY.

Persons who see my circulars say The A. I. Root Co. shall have their jobwork in the printing line hereafter. T. H. COOK, M. D.
Scio, O.

It would be impossible to produce any thing in the shape of foundation to excel the samples of the new Weed. J. A. GOLDEN.
Reinersville, O.

The septum in the comb drawn out from the new-process foundation is tougher than that made in the old way. JAMES L. HOYAL.
Spring City, Tenn.

Every thing in my order checked out exactly. So accurately are they cut that a wayfaring man need not have any trouble in putting them together.
Palmy, Texas. W. B. BARBEE.

The 500 cards were O. K. We appreciate your interest in our church work in doing it with such promptness and at such satisfactory prices
Grafton, O. (REV.) W. A. LEARY.

I inclose fifty cents in full of your bill for ad't in GLEANINGS. My honey sold so fast that it was all gone before I realized it. EMIL J. BAXTER.
Nauvoo, Ill., Dec. 19, 1898.

Your sample of Weed new-process foundation is received. It is certainly the most beautiful and most nearly perfect I have ever seen. It is as clear as glass. To say that I will use it regularly will be superfluous.
Augusta, Ga., Nov. 19, 1898. H. J. TWIGGS.

The Corneil smoker possesses the qualities of good size, good draft, gives large volume of smoke with little attention; simplicity, strength, easy access to fire-barrel; lightness; good shape, and is sold at a low price. W. S. HART.
Hawks Park, Fla.

The Taylor comb-leveler ought to be in every apiary. It leaves the comb in fine shape for the bees to fill.
Minneapolis, Minn. WM. URIE.

The goods are all satisfactory. The foundation is superb—the finest we ever had. The Clark smokers can't be beat for material and workmanship.
High Hill, Mo. JOHN NEBEL & SON.

I think GLEANINGS is worth the dollar. I admire your paper much for the information it contains. It is easy to see you understand your business of printing a good bee-paper. Long may it prosper.
N. J. STEIGLEDER.
Highland Springs, Va., Dec. 12.

During the past year we have used many advertising mediums, and the result shows Gleanings to be far ahead of the other mediums used in proportion to the expense. It gives us pleasure to send this unsolicited testimonial. THE MARKET GARDEN CO.
Minneapolis, Minn.

I am a natural cabinet joiner, also a ship-builder and house carpenter, with as complete a set of tools as can be found in the city of Buffalo. You may think strange of my giving you an order. I can only say, I am pleased with your work without the aid of sandpaper, dado fillister, hand-plow, or but-plane.
Buffalo, N. Y. CHAS. G. IRISH.

Please continue to send GLEANINGS and I will remit soon. I have not received it for Nov. 15. Thinking you had stopped it I write I must have it, for I feel lost without it. It is the best gotten up of any paper on bees that I ever subscribed for, and one of the neighbors says he always likes to get it, for it interests him.
Marion, Mass., Nov. 23, 1898. T. N. BRIGGS.

Your Weed foundation, despite a strong prejudice in several quarters against it on its introduction, has literally taken the foundation market by storm. It has three advantages over our home-made product: The bees take to it faster; there is more surface to the pound, with less liability to twist, and it is literally cheaper in most cases than the English foundation. It is of uniform quality, and the consumer knows he is getting pure beeswax with it. F. SLADEN.
Ripple Court, England.

FROM 85 TO 180, AND 8000 LBS. OF HONEY.

GLEANINGS has, in my estimation, always been an up-to-date paper, overflowing with "good things" for the bee-keeper as well as the home generally.

We have had a good season here for bees. It is nearly always the case that we have a good crop of honey here in the Ottawa Valley. This spring we started here with 85 colonies, increased to 180, and got 8000 pounds of extracted honey. L. TOMPKINS.
Billing's Bridge, Ont., Can., Dec. 5, 1898.

GOOD NEWS FOR THE GREAT HEALTH RESORT AT THOMASVILLE, GA.

Our county prohibition election is just over, and we carried it "against the sale" by an overwhelming majority. Everybody is surprised, as Thomasville (the great winter resort) is the capital of this (Thomas) county. You can inform all your friends who come south during the winters, that, after March 1 next, they will find there a *dry*, healthful climate, not marred by bar-rooms and their usual attending scenes
Cairo, Ga., Dec. 7. WIGHT & MAULDIN.

[We should probably not have given place to the following kind word had not the writer expressly requested us to put it in print. He thinks it is no more than fair, as somewhat of a rebuttal to the severe reflections that have been made on our ways of doing business.—A. I. R.]

I have dealt with A. I. Root since 1884. I wish to say to the public at large, that all who look for honest dealings and the best of goods should give The A. I. Root Co. a trial order. If a mistake occurs they are always ready to correct it; and he who keeps bees for profit should not be without GLEANINGS.

I have now about 200 colonies of bees, all in Root's one and two story chaff hives. Last summer's honey crop was fair—about 3500 pounds of comb honey and 1000 of extracted. JNO. SCHNEIDER.
McIvor, Mich., Jan. 18.

WHAT AN OLD BEE-JOURNAL PUBLISHER THINKS OF GLEANINGS.

I feel like expressing my opinion on the Feb. 1st GLEANINGS. The first thing that took my eye when the wrapper was removed was the last page of the cover. Whoever set and arranged those ad's is an artist of the first water. How could any one help reading all those ad's? You are working so much good humor through almost every page of your paper that it all is *more* than interesting. HENRY ALLEY.
Wenham, Mass., Feb. 7.

[In our department, Pickings, Feb. 1, reference is made to a Japanese paper printed in Tokyo, Japan, by Mr. J. Ikeda. Since that was written we have received the following letter from Mr. Ikeda himself. It is more spicy as written, hence we do not try to make it conform to the English idiom except where really necessary.]

Dear Sir:—I was very much impressed with your first letter to us the other day. Now, what is the matter why you struck my heart? you will ask. Well, sir, I'll try to mention that. My first thought was that your magazine is simply devoted to that line only; and as I publish an agricultural magazine I asked you to exchange. And for that answer you mentioned us kindly, accepted our wish, and, besides this, you asked us to join hands for righteousness and temperance. Righteousness and temperance were the matters which gave me much interest. I am baptized about 12 years ago by a Canadian minister, and after that I feel that it is our duty and pleasure to let all know of the gospel, and do righteousness to our country friends. Especially I felt it most important to organize some temperance society. Perhaps some of our sisters of the World's Christian Temperance Union, of Chicago, know the name of Mr. Sen Tsuda. He is an eminent Christian, and is the first man who taught people to be abstinent from wine, and of the importance to organize the society. On this opinion he published a magazine purely devoted to that line. The name given to that magazine was *Hinomaru* (Red Sun, our national flag's sign). I was the editor while Mr. Tsuda was the publisher. The magazine was published duly, and continued about two years, and finally it was connected with the brother magazine, the Yokohama *Temperance Magazine*. Now I am not directly connected with any temperance society, but I have much interest in the same Allow me to mention some conditions of the temperance movement in Japan. There are many societies, but the most remarkable ones are as below: Tokyo Temperance Society, Yokohama Temperance Society, Hokkai Temperance Society, Woman's Christian Temperance Union. These three first are managed by men, but the latter one is purely managed by women. Each of them has magazines for its use, and have pretty large circulations. In Japan these works are done chiefly by Christians, and the societies owe very much to Christianity.

People know, sometimes, the good of Christianity, but are troubled by their drinking; and after they abandon their cup they smoothly enter into the gate of life. As a rule, Christianity is not welcomed by some people; but a temperance lecture is better, or easier, so the ministers and believers are all interested, and have sympathy for it. There were some temperance societies organized by the Buddhists, but soon extinguished; and also there were some by unbelievers; but these in the end were about the same We have found by experience that, if we wish to let a man become a Christian, it is well to let him unite with the society at first. I should like to mention in our paper for bee culture something for the promotion of social intercourse. In all these I shall be much benefited by your valuable paper. Yours truly,
Tokyo, Japan, Jan. 2. J. IKEDA.

The A. I. Root Co.'s Goods At Their Prices.
Including their discounts for goods wanted for use another season. It will pay you to send me list of goods wanted.
M. H. HUNT,
Cash for beeswax. **Bell Branch, Mich.**

EARLIEST QUEENS reared in U. S.; increased facilities for promptness; all queens guaranteed. Write for prices from half dozen to 100.
J. B. CASE, Port Orange, Fla.

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Honey Column.

CITY MARKETS.

Cleveland.—We quote our honey market to-day as follows: Fancy white, 13@14; No. 1, 12@12½; light amber, 11; buckwheat, 8; extracted, white, 7; light amber, 6.

A. B. Williams & Co.,
Feb. 17. 80-82 Broadway, Cleveland, Ohio.

Albany.—Honey pretty well cleaned up. We quote fancy white, 12@13; No. 1 white, 11@11½; No. 2, 9@10; mixed, amber and buckwheat, 7@8½; extracted, white, 7@7½; dark, 6@6½.

MacDougal & Co.,
Successors to Chas. McCulloch & Co.,
Feb. 21 Albany, N. Y.

Philadelphia.—Honey is in fair demand, not much activity. Fancy comb, 15; No. 1, 12; amber, 10; dark extracted, 5½; amber, 6; white, 7. Beeswax, 27. We are producers of honey—do not handle on commission.

Wm. A. Selser,
Feb. 21. 10 Vine St., Philadelphia, Pa.

Chicago.—Fancy white, 13; white and travel-stained, 10@12; dark and amber, 7@9; candied and mixed colors, 6@7; extracted, white, 6@7; amber 5@6. Beeswax, 27@28.

R. A. Burnett & Co.
Feb. 17. 163 South Water St., Chicago, Ill.

Boston.—Full supply, light demand. Fancy white, 13; A No. 1, 12; No. 1, 11; No. 2, 9@10; No. 1 extracted, 8. Beeswax 26@28, very light supply. Dark honey will not sell here.

Blake, Scott & Lee,
Feb. 22. 57 Chatham St., Boston, Mass.

Columbus.—Honey trade very dull, caused principally by bad weather. Prices nominal; fancy white, 12½; No. 1, 11@12; amber, 9; dark, 8. To move large lots prices must be shaded.

Feb. 21. **Columbus Commission and Storage Co.**

For Sale.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60 lb. cans for $7.20.

The Arkansas Valley Apiaries,
Oliver Foster, Prop.
Las Animas, Bent Co., Colo.

For Sale.—Fancy white extracted alfalfa honey in 60-lb. cans at 7c per lb.; in lots of 500 lbs. or more, 6½c per lb., f. o. b. cars Denver. Sample by mail 8c.

Rauchfuss Bros., Elyria, Colo.

Well, neighbors, what can I buy your honey at in lots of one hundred pounds and up? What is it gathered from? What grade is it? and how is it put up?

T. L. Shaffer, Lake View, O.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange one thousand wide frames with tin separators, for something I can use.
C. J. Baldridge, Kendaia, N. Y.

WANTED.—To exchange two small printing-presses and printing outfit for bloodhounds, ferrets, fancy poultry, bicycles, or something I can use.
James M. Denham, Valley, Ky.

WANTED.—Your address for a free copy of my book on queen-rearing.
Henry Alley, Wenham, Mass.

WANTED.—By a practical apiarist and queen-breeder, a position, in any locality; or an apiary on shares. **Abbott L. Swinson,** Goldsboro, N. C.

WANTED.—To exchange supplies, nursery stock, or seed potatoes, for printing-press, honey, or wax.
O. H. Hyatt, Shenandoah, Page Co., Iowa.

WANTED.—Young man to work on small farm, in connection with bees. One that uses tobacco, or runs to dances nights, or rather be hunting or fishing on Sunday than to be in meeting or Sabbath-school, need not apply.
H. S. Wheeler, Mt. Pleasant, Mich.

WANTED.—To furnish my hives and sections, to careful men, for a share of No. 1 clover honey. Also 4 sizes of the prize comb-honey cartons, and 68 pages of "Facts about Bees," for 6 cts. in stamps.
F. Danzenbaker, Washington, D. C.

WANTED.—Man to work in apiary the coming season. State age, experience, and wages expected.
Chas. Adams, Greeley, Colo.

WANTED.—To exchange a brand-new ball-bearing combination washing-machine, for bicycle or incubator, or something I can use. Write for circular.
Arthur Bender, Rutherford, N. J.

WANTED.—Some good person to have full charge of an apiary of 125 colonies, to run on shares.
E. A. Harris, No. Petersburgh, N. Y.

Albino Queens. If you want the most prolific queens, if you want the gentlest bees, if you want the best honey-gatherers you ever saw, try my Albinos. Untested queens in April, $1. Tested, $1.50.
J. D. Givens, Lisbon, Texas.

CASH FOR BEESWAX.

Will pay 26 cents per pound cash, or 28 cents in trade, for any quantity of good, fair, average beeswax, delivered at our railroad station. The same will be sold to those who wish to purchase, at 33 cents for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.
THE A. I. ROOT CO., Medina, Ohio.

FACTS About Bees.
REVISED EDITION.
How to get
GILT-EDGED HONEY
Send 2c stamp to
THE A. I. ROOT CO.,
Medina, Ohio.
or F. Danzenbaker,
Box 66, Washington, D.C.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Eastern Bee-keepers.

Do You Expect to Buy

APIARIAN SUPPLIES

the coming year? If so, you want to get a good quality of goods at a reasonable price. Our aim will be to please you. Will you write us **now**, stating what you will need, and allow us to quote you prices? You will

Get a Liberal Discount

by ordering now; goods to be shipped and paid for when wanted. It will cost but two cents, and save $. We keep several carloads in stock.

I. J. STRINGHAM,
105 PARK PLACE, - - NEW YORK.
Discount-sheet to dealers. Catalog free.
In writing, mention GLEANINGS.

The A. I. Root Co.,
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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS FROM DR C. C. MILLER

ARTHUR HANSEN, p. 132, is the first man I've seen making end-bars the same as mine, 1⅛ inches wide. Now, friend Hansen, why didn't you make bottom-bars the same width?

GETTING COMBS in extracting-super built out with cells too deep for queens, as mentioned by Arthur Hansen, p. 132, is an old trick, and I think successful, but it is objected that it gives less comb surface, and ripening is slower.

I AGREE with Doolittle *and* Stenog, p. 123. If *all* would breed and select with the care and good judgment of Doolittle, it would be better than importing. With things as they are, there would be a lowering of average if there should be no more importations.

TO EMPHASIZE a statement of R. C. Aikin, p. 128, I may say that not only will my bees not build down to the bottom-bar, but if foundation comes within $\frac{1}{16}$ or ⅛ inch of the bottom-bar, and often even when it touches the bottom-bar, they'll gnaw it away so as to leave a ¼-inch space.

YOU'VE STRUCK IT. I mean those springs on p. 141. [Yes, so practical and extensive a bee-keeper as M. H. Mendleson, of California, used and tested these springs very thoroughly last season, and I understand he was delighted with them. Mendleson, you know, is one of the most extensive bee-keepers in California.—ED.]

MR. EDITOR, your medical doctrine, p. 122, is all right. When grip began to be troublesome this winter I redoubled my carefulness as to diet, especially as to overeating, and the grip has been able to do no more with me yet than to make me feel like using the lounge more than usual. But I mustn't brag, for there's no telling what may yet happen.

FIFTY COLONIES in an apiary are more profitable than 100, says Doolittle, p. 138, if each colony uses 60 lbs. for its own support and the field furnishes 11,000 lbs. honey. Correct, *if* each colony will store 160 lbs. surplus, and if the field furnishes only 11,000 lbs. But if each colony can store only 100 lbs. surplus, and if the field furnishes 16,000 lbs., then not a colony less than 100 should be kept.

FRIEND AIKIN, you say, p. 128, that a section or brood-frame a half deeper than wide will be finished quicker than if turned the other way. I admit the section, but dispute the brood-frame. It would be so if the comb was started at one point and all built from that center. But the comb is started in three or four parts, each part being a half deeper than wide.

C. DAVENPORT, p. 133, thinks it isn't patriotism to receive honey from Cuba. Friend C., if patriotism makes us care for no country but our own, then there's something higher than patriotism. If the greatest good to the greatest number is advanced by letting in Cuban honey, then let it in, even if it drives us all out of the business. But may be enough will go to Cuba to eat all its honey at the low prices.

BICYCLES with their gear-cases and other improvements get quite a send-off in last GLEANINGS. But that one of Rambler's, p. 136, beats 'em all, for it breathes "to the full the balsamic fragrance." That must be some new arrangement for inflating its own tires. [A gear-case on a bicycle, to use another comparison, is just about as necessary, in my judgment, as a smoker to open a bee-hive. Either can be dispensed with, but not profitably.—ED.]

DYSENTERY, according to reply to F. A. K., p. 137, seems to be a matter of food. But don't bees sometimes have dysentery with wholesome stores? In any case, if my bees had dysentery in cellar, I'd run up the temperature for a few hours to 60 or 80 degrees. I don't know, but I *think* it helps. [Yes, bees do die of dysentery, even with wholesome food. Some of our colonies last fall, fed exclusively on sugar syrup, are showing, as a result of the extremely cold weather we have been having, dysentery to quite a serious extent. I always supposed that disease was caused either by too long confinement, without an opportunity to evacuate the bowels, or by long severe cold causing the bees to gorge themselves more than was for their good, in order to keep up the necessary animal heat.—Ed.]

D. W. HEISE gives it in *Canadian Bee Journal* as an incontrovertible fact that "the first and primary cause of bees constructing drone comb is for the reception of honey." I'm inclined to controvert that incontrovertible fact, at least so far as to say it isn't always true. In a super of sections filled with worker foundation, I've known the bees to start drone comb where the foundation was lacking in one of the sections, and that drone comb was left with shallow cells and not a drop of honey in it while the rest of the section and all the sections around it were filled with honey. Now if "the first and primary" object of that drone comb was honey, why didn't the bees put honey in it?

I WAS GETTING READY to report that, by having so many colonies (289) in one cellar I didn't need any fire, when a cold spell came, and for 18 days it varied from zero to 25° below. The thermometer in cellar went down to 41°, 39°, and finally 36°. I couldn't stand it any longer—made a hot fire, running up to 60° the heat on hives nearest the stove. Would you believe it? within two days the weather was so warm I had to keep the cellar door open all night. [This sudden change for the warmer was the only thing that saved the bees wintered on their summer stands. Reports, as you will see, show this sudden change to warm weather will prevent the bees from being as much injured as we at first expected.—Ed.]

SIXTY HIVES AN HOUR can be opened when using the entrance-closer mentioned on p. 124. With the one I use they can be opened in less than one-fourth that time. [And you might have added that your entrance-closer costs only about a tenth as much. Our friend Mr. Kreutzinger is a very nice man and a good bee-keeper; but I can not say that I like his entrance closer. It is too much of a good thing. For the benefit of some of our readers who do not know what Dr. Miller's entrance-closer is, I would state that it is simply a strip about ⅝x⅞, and in length equal to the width of the hive entrance. On this is nailed a strip of wire cloth, folded to give it stiffness. Two taps of a hammer will secure these in position; and if they ever get lost, strayed, stolen, or stepped on, the loss is insignificant.—Ed.]

"HIVES with Hoffman or self-spacing frames don't require to be handled like eggs," you say, p. 122, so you think they can be taken on a wheelbarrow, Mr. Editor. None of my hives or frames require handling like eggs. They stand hauling on a wagon or a wheelbarrow without any precaution. It's not the frames, it's the bees. When taken in the cellar I want them to be taken in without being waked up. Taking out is not so important; but even then I'd rather see no bee leave the hive until some time on the stand. [H. R. Boardman wheels all his colonies into his winter repositories on a hand-cart; but the wheels are of large diameter, and his yard is level. But even a wheelbarrow on a smooth path ought to be able to deliver the colony to the cellar-opening, with scarcely a perceptible jar; but a wheelbarrow for you—well, that would not do, sure. Your apiary is on a hillside, and the ground from the hives to the cellar is somewhat uneven. I'll let you have your own way.—Ed.]

TWO OR THREE have said that, in many cases, with the new arrangements the outside sections in a super were finished first. I'm anxious to believe that's true, but it seems so directly opposed to all rules of comb-building that I may be excused for asking whether there wasn't something wrong with the middle sections. It's easy to explain why central sections should be finished first; can any explanation be given why central sections should be finished first? [It is a fact that we have had a good many reports showing that the Pettit idea secures sections on the outside, as well filled as those on the inside; and this same idea was incorporated in all the plain-section supers except one put out by us last season. I do not remember that any one claimed that the outside surfaces would be *better* filled than the center. But assuming that you are right, the reason may be because the fence on the outside permits of a larger wall of live bees between the super side and face of honey than between two opposite faces of honey in the center of the super. The Pettit idea is based on the fact that good filling is due to plenty of animal heat; and if we put *more* animal heat on the outside faces of the sections, then the natural result would be that they would be filled sooner and perhaps better. If I have not properly set forth the Pettit theory I hope he will correct me.—Ed.]

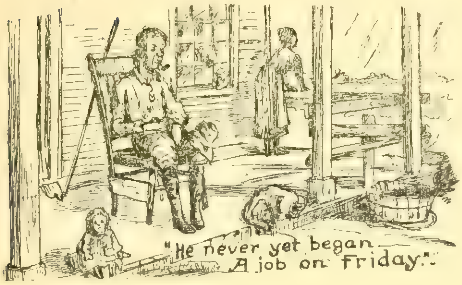
LOOK AT A SECTION and see how the finish is worked out even with the narrow part of the section top, but dubbed off when it comes to the wide part, says R. C. Aikin, p. 127. I've just examined a lot. The dubbing does not begin till after part of the wide part is past, making it appear that it isn't the wide part that makes the dubbing, but rather because it's near the corner. Moreover, at the middle of the side it's built out just as full as at the middle of the top, and the side is dubbed just the same when it gets near the corner, and surely there's no wide and narrow part to the side. The main question is, is there no dubbing in the corner of a plain section? [R. C. Aikin is partly right, and you are partly right. *Under like conditions the plain section will be filled no better than the old-style section.* I put this in italics because I have often been quoted as taking the opposite view. If plain sections are filled better at the corners, it is because the bees have passageways over the tops of the separators from one section to the other, the separator being dropped down ¼ inch from the top of the section. A one-piece section open clear across the top, and part way down the sides, is a far better bee-way section than the ordinary one sold on the market. Mr. C. A. Hatch, a very conservative bee-keeper, who had seen how well Mr. Danzenbaker's open-corner sections were filled, at Omaha, gave it as his candid opinion that these open corners were very important, and did much to secure better filling.—Ed.]

The Box-Hive Man.

By Eugene Secor

I HAVE a dear old neighbor
Who lives in Sleepy Lane;
He keeps some bees
Among the trees,
From which he gets no gain—
No one directs their labor.
He had a wise grandfather
Whose bee-lore downward ran
And lodged upon this grandson,
My friend, the Box-hive man.

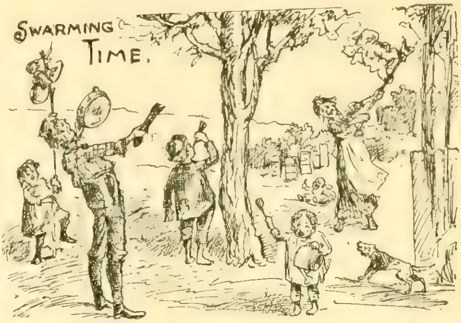
The almanac he studies,
He knows about the moon—
Its every phase,
Its changing days,
And never plants too soon;
He waits until the flood is
Well past, called equinoctial;
He never yet began
A job on any Friday—
My friend, the Box-hive man.



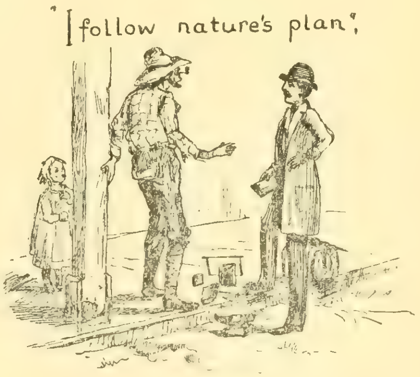
He looks with veneration
Upon his few "bee-skeps;"
Down on his knees
He tells the bees
About his sad mishaps,
And seeks their consolation.
To sell 'em'd be unlucky—
For this tradition ran
According to the memory
Of this the Box-hive man.

When time arrives for swarming
(But not before July),
The children all,
If not too small
To know the reason why,
Are tasked with the informing
Of "pap" afield, by calling,
Or drumming a milk-can
To charm the bees, and hasten
Their sire, the Box-hive man.

Of course he takes no paper,
And never reads a book—
"They're all nonsense,
And much expense
Which I can't overlook;
Besides, I'm not an aper
Of other men's fool notions;
I follow nature's plan,
And that's the best, I reckon,"
Says he, the Box-hive man.


SWARMING TIME.

He gets a *taste* of honey
When every thing goes well,
But not till fall—
His hives are tall,
And made to *hold* the mel
Instead of making money;
But why he doesn't "get there"
Like others of the clan,
Has never once occurred to
My friend, the Box-hive man.



He leads a life of easy
Don't-care-how-this-world goes;
Contentedly
He sips his tea;
And if it rains or snows,
Is sunny, calm, or breezy,
He smokes his pipe of comfort,
Disturbed not by a plan
That racks the brains of others—
My friend, the Box-hive man.

PICKINGS

FROM OUR NEIGHBORS' FIELDS.

BY "STENOG."

"March forth!" says Queen to all her bees;
"Provide 'gainst hunger—thirst."
"Not so," says Drone; "let's sleep awhile;
To-day is but the first."

BEE-KEEPERS' REVIEW.

J. E. Crane writes in favor of selling section honey by the piece instead of by weight. He says it seems to him a little absurd that the bee-keeper who produces thousands of sections of nice comb honey, all of an exact size, and nearly the same weight, should sell by weight, while the one who buys of him sells by count. He reasons from analogy that sections of honey varying almost nothing at all in weight might as well be sold by the piece as eggs that vary in weight as much as two to one. His points are well taken. If a dozen sections, for instance, are placed on the counter, and marked, "Your choice for 16 cents," each person buying can have what he considers to be the best; and if his neighbor has just bought a better section than he, what loss has he sustained so long as he gets just what he is willing to take, and knows the price?

◆

One of the most experienced bee-keepers in the country in regard to the matter of wintering bees in cellar is Mr. C. Davenport, of Minnesota. Referring to the matter of the best time for setting bees out on their summer stands he takes a position that will go far toward bringing together those who advocate very early removal and very late. He says if the bees have wintered well, he finds it best to let them stay in the cellar till settled warm weather. If, on the other hand, the conditions have been such that early spring finds them very restless and uneasy, and many of them are leaving their hives and dying, the sooner they are set out the better. Mr. D. recognizes a middle ground, however, and says that, one year with another, it makes but little difference whether they are set out in March or April in his locality. He puts each colony on its old stand, as a rule.

◆

Rambler calls in question the supposition that bees dislike black more than white. He wears a suit of blue jean overalls while at work in the apiary, and alternates this suit with a clean one every other day, leaving one suit in the soak while the other is in use. This gives him a clean suit every day. He says bees seldom make an attack upon *clean* clothes of any color. He finsd if a bee-keeper will dres in a complete suit of black, and keep it clean, the bees will not be disposed to attack it. But he notes where there is a fuzzy protuberance on clothes or on a hat, the bees will persistently attack that point. He says a hole in a black hat is just what bees like to pounce on. The more fuzz there is on clothing, the more the bees will attack it; and when two or three bees discharge their poison on the same spot the odor brings many more. He clinches his argument by asking how many bee-keepers have known bees to prefer to sting black pants rather than a white leg while they are crawling up inside of the pants. He adds, "That sting is a conclusive argument."

◆

F. A. Snell, Milledgeville, Ill., drives a nail in the right place in a plea he makes for planting certain trees for honey, and especially the hard maple. This is certainly one of the best trees nature has given us. It grows fast, "yields a liberal amount of honey while in bloom, and blooms late enough so the weather is generally good for the bees to work." Mr. Snell is not so enthusiastic over the soft maple, as, on account of its extreme earliness, it is liable to be frozen so that it will yield neither honey nor pollen. It is a fine tree here, and is literally a "hummer" when the bees first strike it in early spring. It is a fast grower, and is one of the best shade-trees we have. Mr. Snell says the white (or gray) willow yields later than the maple, and furnishes honey and pollen well.

◆

It seems that the question as to the origin of honey-dew, like the dew itself, will not "down." Mr. J. A. Nash, of Iowa, says that, a few years ago, there was a great yield of that stuff in Iowa, and before spring it had killed four-fifths of his bees in the cellar, where he had previously wintered a large apiary several times without any loss. He says he might have still believed it was a secretion of bugs had not an old bee-keeper come into his apiary one morning and said, "Look a-here. You told me this honey-dew was made by bugs. Now, I jist cut a black-hickory tree that was covered with honey-dew, and there were not forty lice on the whole tree, as I could find, and I have two good eyes. Don't you think it was a sorter heavy strain on them lice to make all that? I allow they sot up nights." Mr. Nash says there were tons of that stuff gathered, and the lice could not be found at all.

◆

J. H. Martin is enthusiastic in regard to having pretty apiaries. He says he used to cover his honey-house with paintings of the high-colored Italian bees. He found these bits of bright color were a great relief to the eye and the brain when tired with work. "A bit of bright color in the shape of a rose or geranium has the same effect where they can be grown judiciously." But Mr. Martin adds, in his own graphic way, "It may not pay in dollars and cents—certainly would not where the owner sees more beauty in a pigsty than in a bit of bright color." He says Mr. J. F. McIntyre has the most orderly apiary in Southern California. Owing to the beautiful pictures it makes, it is the best advertised apiary in the country. I am sure there is much to rest one by looking at bright positive colors. I find the tedium of shorthand writing is entirely relieved by using bright carmine ink a while, then some other lively color, such as blue, violet, or green. I supposed it was a notion of mine, but I see I am not alone. That is why we like to change the color of the cover of GLEANINGS once in while. And then see how quickly boys will grab for a green or yellow firecracker rather than one of the regulation red kind. And how a rainbow stirs the soul by its charming colors!

AMERICAN BEE JOURNAL.

The comb-honey yarn is up again. Mr. York prints the following from the *Farmer's Voice*, of Chicago:

> It is almost impossible to buy pure honey. Even honey in the comb is adulterated. A syrup of glucose and dissolved sugar is fed to the bees, and they fill the combs as with honey, but it is inferior.

The clipping was sent to Mr. Eugene Secor, who replies with a complete refutation of the statement, mentioning, among other things, that Mr. Danzenbaker watched the agent of a glucose-factory in his attempts to get bees to take glucose, but it could not be done. Mr. York mentions a similar canard in the *Evening Post*, of New York. I replied to them in full, sending them a sample of foundation. I believe in replying to such statements by writing to the editors of the papers themselves, as they will in every case, probably, publish a fair statement of the facts as we know them. I am not sure that *my* reply appeared in the *Post*, but I am glad semebody's did.

As this is the shortest month in the year, and space is at a premium in GLEANINGS just now, and as the other journals have not come yet, it will be necessary to stop picking just here.

GENERAL CORRESPONDENCE

AN INTERVIEW WITH J. E. CRANE.

Wintering Bees; Wind-breaks; Smokers; Cheap Honey-packages; Plain Sections, etc.

[Some little time ago I told you that "Stenog" had taken down verbatim an interview that occurred between Mr. Crane and myself. At the same time a kodak made an attempt to preserve the visible portions of the interview; but when we came to develop the film we found, to our chagrin and sorrow, that it was "fogged;" and I am, therefore, unable to show you the two of us in animated discussion. Well, here is what flowed from Stenog's pen.—ED.]

Mr. Root.—About how many colonies have you, Mr. Crane?

Mr. Crane.—About 525.

R.—In how many apiaries?

C.—Five.

R.—Don't you find that so many colonies in one yard are too many?

C.—Perhaps they give a little less honey per colony, but that, I believe, is fully made up in convenience in handling.

R.—How many helpers do you have generally?

C.—Only one.

R.—How many hours do you work a day?

C.—Well, we are supposed to work only ten hours; but sometimes the number is lengthened to twelve or even fifteen during the height of the season—it varies greatly.

R.—Do you produce comb or extracted honey?

C.—I produce comb honey altogether. I produce extracted honey from unfinished sections, and that is all.

R.—Why do you produce comb in preference to extracted?

C.—Oh! it is less work to do so; and, besides, I find a more ready market for it—those are my principal reasons—there may be others.

R.—How do you manage swarming at outyards?

C.—Well, I remove the queens from some hives when the bees are preparing to swarm, and from others I remove the brood-combs, and give them empty combs, or frames supplied with foundation instead; cutting out queen-cells where the queen is removed, and giving virgin queens, after two weeks or more, to queenless colonies.

R.—Don't you find that an immense amount of work?

C.—Yes; but I have failed yet to accomplish very much without considerable work.

R.—Don't you sometimes miss some cells?

C.—I think very likely I do—undoubtedly; but I have observed that, where I keep a man in a yard to watch the bees, I also lose swarms; but the loss is no greater, so far as I have observed, by my method, than where I hire a man for each yard, and the profit is rather greater.

R.—Do you shake bees off the combs when hunting for cells?

C.—I do usually where the colony is very populous.

R.—Do you have blacks, hybrids, or Italians?

C.—Oh! I have all kinds, but most largely hybrids.

R.—Why do you have hybrids?

C.—Well, it is too much work to keep pure stock. I should prefer the best strains of pure Italians or else pure blacks.

R.—But wouldn't you have more difficulty in shaking the bees off the combs with pure Italians?

C.—There would be less necessity for shaking the bees off, because they remain more quietly on the combs.

R.—And is it a fact that, by this plan, you and one helper can manage over 500 colonies?

C.—We do so.

R.—About how many hours a day did you put in, each of you?

C.—It didn't average far from ten. Probably, during the height of the season, we put in more than that—doubtless eleven or twelve.

R.—Mr. Crane, has your experience with plain sections this season been such as to warrant you in using a larger number next season?

C.—It has.

R.—Do you have any trouble from the so-called ridging, with plain sections?

C.—No serious trouble.

R.—Would the average purchaser or consumer notice such ridging as you did have?

C.—I think not.

R.—Did you find that the faces of comb honey in any of your plain sections went beyond the edge of the sections themselves?

C.—I do not remember any except with the very few where the separator was too narrow. They built out above.

About how many tons of honey do you think have been produced the past season with fences or plain sections, Mr. Root?

R.—Oh dear me! you ask too hard a question.

C.— Well, give it as nearly as possible.

R.—I do not know how much was produced all last year. The season was poor; but I should think that anywhere from 10 to 25 per cent of all the comb honey produced last year was put up in plain sections.

C.—I am glad to know it. About how many persons have used them?

R.—Most of our customers who bought our latest goods bought plain sections and fences. There must be several thousand who bought them last season.

C.—How many have gone back on them?

R.—I do not know of any who have classed the plain section and the fence as a failure unless it is friend Thompson, in our issue for Dec. 15th last, or R. F. Holtermann in the *Canadian Bee Journal*. There are some others who found they did not work to their entire satisfaction; but when we began to investigate we found the trouble was due to the faulty construction of the fences. There may be others who have classed plain sections and fences as a failure; but if so, I am almost inclined to believe it is because they wanted to believe so in the first place.

C.—This is very important information. I was not aware that so large a proportion of the honey was produced in plain sections, or that so many were using them, or that their use was so satisfactory. Another question: Can a 1-lb. package for extracted honey be gotten up for a cent each?

R.—There may be possibilities along this line; but, so far as I know, no package has yet been devised of tin, glass, or wood, that would come anywhere near as low a figure as that. The nearest of any thing that I know of is an ordinary tin fruit-can holding 2 lbs. These can be bought in a wholesale way, I believe, from the manufacturers, for about 2 cts. a can, or at the rate of about a cent a pound for honey. These packages are not self-sealing—that is to say, the cap or cover has to be soldered on after the fruit or honey is placed in the tin.

C.—Could a package of tin be gotten up in the flat for one cent, so the bee-keeper could put them together?

R.—Possibly; but the manufacturers would have to have a very large order before they would attempt to make a smaller package in the flat.

C.—It is the same with extracted as with comb honey. Consumers will sooner buy five 1-lb. packages than one 5-lb. package.

R.—I believe you are right. A little correspondence with manufacturers would show what can be done, at least. Mr. Crane, how do you winter your bees?

C.—Outdoors, packed.

R.—What is your percentage of loss, one year with another, in winter?

C.—It varies with the different yards. Where bees are sheltered from the wind the loss is, perhaps, not more than one or two per cent. One such yard two years ago came through without the loss of a colony previous to swarming time. There were nearly a hundred hives in the yard.

R.—That is a good record.

C.—Last winter, in the same yard I lost four or five; all, I believe, were hives that were without packing, and had little or nothing over the brood-chamber; half or more of the brood-frames open or exposed. Not more than one or two were properly packed.

R.—I understand, then, that this loss was due largely to the fact that the colonies were not properly packed, do I?

C.—Almost wholly that. Practically these and no others were lost. There may have been one or two more.

R.—What sort of windbreak do you have around the yard in question?

C.—An arbor-vitæ hedge, high picket-fence, and buildings to some extent. In fact, they are sheltered so that the wind is largely broken. And there are some pine-trees in the yard, too, that act as windbreaks.

R.—All things considered, wouldn't you prefer a high board fence?

C.—No, I should not.

R.—Why?

C.—Because a tight board fence turns the wind, and the wind is liable to go over the fence and swoop down in the yard with even more violence than where there is no fence nor any thing else around to produce heavy drifts, while a hedge of evergreens or a picket-fence, practically open, breaks the force of the wind. It simply slows it up. It is marvelous how a hedge of evergreens or a picket-fence will slow up the wind, allowing a very moderate amount to pass through and thus break the force of it.

R.—That is a good point. I notice at our home yard the evergreens accomplish such results as you have stated. The trees make a great roaring when the wind blows through them, but within the inclosure every thing is comparatively quiet. Years ago, when we had a tight board fence it had a fashion of blowing down occasionally; and then very often it would bend at an angle of 45 degrees, giving the wind a good chance to swoop up and down, as you say.

C.—I now consider the question of wind one of the most important in the location of an apiary.

R.—Mr. Crane, what size of entrance do you prefer on your hives, all things considered, winter and summer?

C.—The summer entrance to most of my

hives is ⅝ inch by the width of the hive in length.

R.—If you could change your entrances to wider, would you do so?

C.—I am not sure. They answer well, excepting a very few days in extremely hot weather, with hives that are exposed to the sun.

R.—And that reminds me. Do you prefer shade of some sort for your hives?

C.—A little, but not too much.

R.—A shade of what sort?

C.—Trees. By the way, in speaking of protection from wind, one thing must be guarded against; and that is, that bees should not be too much protected from the wind. A screen of some sort of evergreens, or a picket-fence that will allow a moderate wind to pass through, is to be preferred to one where the wind is entirely broken off, as, during the early spring, when there is sunshine, the atmosphere will warm up inside of such an inclosure so as to entice the bees out, when they will fly above and outside of the protected location, and be lost. I knew one man who lost nearly all of his bees just from this cause. He had a very tight yard.

R.—Mr. Crane, what size of hive do you use?

C.—The brood-chamber is an eleven-frame Langstroth hive; but I have found myself slowly reducing that until I believe at the present time I have only one hive that has eleven combs in—mostly eight combs.

R.—Do you find the eight-frame size large enough for the breeding capacity of good queens?

C.—I find that, where bees are properly protected, and they secure early forage, they begin swarming as soon as clover begins to bloom—in fact, more frequently before clover opens, while as yet there is no honey in sections and but little in the brood-chamber.

R.—Did you ever try running colonies in two stories?

C.—I have.

R.—What were the results?

C.—I have never used them except for extracting purposes and tiering up sections. I sometimes have as many as three supers, one above the other, on a hive.

R.—Did you ever try working for both comb and extracted in the same colony?

C.—Not at the same time. Sometimes I put on an extra story, and allow the bees to fill it; and then I remove it and put on sections.

R.—I have often done that; in fact, for our locality I believe I can get more actual honey, both comb and extracted, by such procedure; and, at the same time, while not actually preventing entirely, to a great extent it discourages swarming. I avoid the hunting-up of queens to cage or remove them, and the subsequent hunting for queen-cells. I wish you would try a few colonies in one of your yards, and see how it works.

C.—Swarming is the most difficult thing we have to contend with. Mr. Root, how soon do you think you can get a strain of bees that will not be inclined to swarm any more than Leghorn hens are to sit?

R.—In the millennium of apiculture. I do believe, however, that something may be done in that line by careful selection in breeding. But somehow bees do not yield so readily to man's whims as poultry and other live stock.

C.—I doubt that statement.

R.—I hope you are right.

C.—The fact that one of the strongest qualities, or one of the qualities most called for (color), has been produced already, would indicate that it is only the demand for a variety that will not swarm, and queen-breeders would presently give us what we ask for.

R.—But don't you think that color yields more readily than any other natural characteristic in insect life?

C.—No, I don't. Like produces like the world over. The law holds good in all vegetable and animal life.

R.—Well, I hope you are right.

C.—Other qualities are produced in other animal life; whatever man desires, by careful selection he has so far been able to secure. If he wants a good cow for butter, he breeds for that purpose. Within the present generation the capacity of the dairy cow has been increased nearly or quite three times above what it was fifty years ago. The same has been true of the production of cattle for beef, and the same is true in the production of sheep for wool. The Spanish merino, introduced into this country perhaps fifty years ago, now produces three times the wool from the same amount of carcass. Of course I refer to best bred animals.

R.—Mr. Crane, whenever I am worsted in argument I always like to change the subject. What do you know about the Crane smoker?

C.—I know that I used one that you sent me three years ago, for three seasons, on 400 colonies of bees, or nearly that, and it was nearly or quite as good at the end of that time as at the beginning. I know no more than that, except that the jacket was broken away from the rivets, and some of the nuts on the bolts lost, but I used it just the same.

R.—Do you have any trouble with the valves sticking?

C.—Very rarely, except in damp days in midsummer, when it is run constantly from morning till night, and the most sticky fuel possible used—cloths coated with propolis. Probably it has not bothered half a dozen days in three years' usage. I think that, to produce the best results, however, they should be occasionally taken apart and cleaned.

R.—I find there has been a little complaint of their clogging; but a little intelligent care will keep them working free and easy.

C.—I have sometimes wished the bellows was a little larger.

R.—But, Mr. Crane, the peculiar feature of the Crane smoker is its strength of blast.

C.—By the way, I had one last season that held fire all night, and we found it in good running order in the morning, ready for work. This was probably the result of using such carbonaceous fuel as cloths coated with propolis.

R.—You spoke a moment ago about propolized cloths. Don't they daub your smoker all up with creosote? and why do you prefer them to other fuel, or why do you use them at all?

C.—My helper prefers them to any thing else, because, when once well filled with them, the smoker will go longer than with any other kind of fuel. We prefer them because the fumes of the burning propolis seem to subdue bees better than any other substance with which I am acquainted. I take it to be the volatile oil produced by the heating and burning of the propolis, as may readily be perceived by placing a quantity of propolis in water and setting it on the stove. Perhaps the delicate aroma of the burning propolis has something to do with the subduing of bees.

THE MORTON SWARMING-POLE.

How to Take Swarms out of Trees, Without Climbing; Full Directions for Making the Machine.

BY E. R. ROOT.

It was a dismal dreary day, when I last stopped at the home of the late Miles Morton; and the rain was pattering down in that quiet way that meant it had come for all day. We could not drive around to see bee-keepers as we had planned, so we busied ourselves in the shop, looking at the various ingenious contrivances of Mr. Morton's.

"See here," said Niver; "here is something you ought to list in your catalog—one of the handiest things we ever had. The neighbors borrowed it; in fact, it was in demand nearly all the time. The one for the home apiary was so handy that we had to have extra ones for the out-yard."

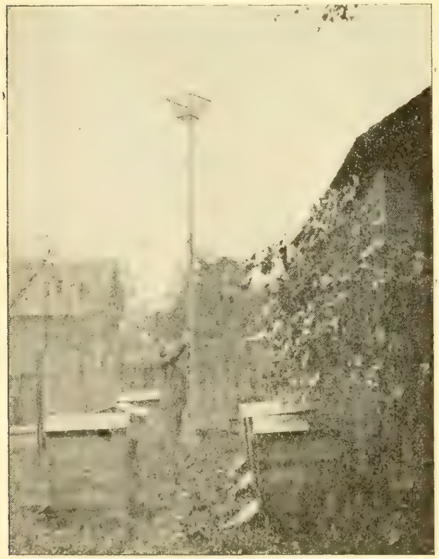


FIG. 1.—THE MORTON EXTENSION SWARMING-POLE.

So saying he hauled out a long double-jointed affair with a wire-cloth basket on the end. It was so long that he had to take it clear outdoors in the rain.

"Now," said he, "you stay inside and keep dry, and I will illustrate the *modus operandi.*"

FIG. 2.—SWARMING-BASKET TO THE MORTON SWARMING-POLE.

"Hold on! wait a minute," I said; "let me fix up my kodak."

"Oh! but you can not photograph me in the rain."

"Yes, I can. There, you hold still while I take a 'time exposure.' One, two, three, four, five, six, seven, eight, nine, ten—there, I have you. Now, then, go ahead and operate."

He stood the pole up in front of him on the ground. This brought the basket some 12 feet above terra firma. He then pulled on a little rope until the thing extended up into the air some 12 feet more.

"There," said he, "how is that for high?"

"Wait a minute till I catch you again;" and as the rain pattered down in what seemed like a never ending patter I counted off another "time exposure."

"How high is that basket now?" I yelled out.

"About 23 or 24 feet. But see here," said he; "I can run it up to 30;" and with this he lifted the pole up so that the bottom was above his head. "It is not often that a swarm clusters higher than 30 feet," said he. "They seem more inclined to select the lower limbs."

"But suppose the swarm does cluster higher."

"Oh! then I suppose we should have to shin up the tree. But I should not have to climb nearly as far with it. I would lean the pole up against the tree, so when I had climbed high enough I could pull the pole up after me; then when I had got hold of the bottom I would pull out the extension, run the basket under the bees, bump them in, pull in the extension, then hand pole, bees and all, to an attendant."

"But suppose you do not have an attendant," I said.

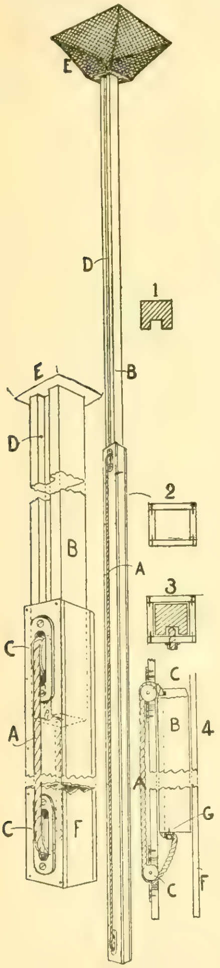
"In that case," he replied, "I would lean the pole against the tree, shin down, and then move the bees."

The thing certainly did work very nicely, even out in the rain. There was not any swarm, of course, upon a high limb to try it on; but I could see one in my mind's eye that little chap of a Niver, 5 feet 4, taking a swarm down and dumping it into one of Morton's big hives.

After Niver had gone through the performance to my satisfaction I asked him to "kindly stand out in the rain a little longer" while I photographed the top part of the apparatus showing a view of the basket; and the result is shown in Fig. 2.

"That thing is certainly very ingenious," I said.

"Yes," said Niver. With this he came inside and began to dissect the same. I made some rough sketches, brought them home to our artist, who elaborated them into a drawing as shown in cut just below.



The machine consists of an outer hollow pole and an inner one, both square. The outer pole is virtually a long box about 2 in. square on the outside, and 12 feet long. A cross-section is shown at 2 in the cut. Inside of this hollow square pole another square pole of about the same length, and just large enough to slide up and down easily, is made. A longitudinal groove, about ⅜ inch wide and deep, running its entire length, is cut on one side, as shown at D, D. This groove is to receive the rope C, C. At each end of the outer pole are let in two ordinary sash-pulleys, as at F, and an ordinary clothesline is then passed through the pulleys. The grooved inner pole is then slid into the outer one, so that the rope lies in the groove. The two ends of the rope are then fastened *at one end*, and "this is where the fun comes in," says Niver; "for it is quite a trick to get the two ends of the rope fastened, and yet have the rope taut after the job is done." The thing to be accomplished is this: The two ends of the rope are made to abut together in the groove four or five inches from the bottom end. They are then stapled down securely. The rope may be fastened as at G, in the drawing; but Mr. Morton had the two ends of the rope abutting together in the groove.

Now, be sure and not make the mistake of fastening the rope at *each end* of the grooved pole, for that will never do, because that will render it impossible to draw the inner pole out of the larger one, as you will see by a moment's reflection; and if you will reflect a little more you will see that it is not an easy matter to fasten the ropes at one end so they will be taut. Although there are two or three ways, Morton's method was to cut off the strip that holds the lower sash-pulley, at a point about five or six inches from the end. This piece, with the pulley, can be pulled out of position temporarily. It is now possible to bring the two ends of the rope together, because we now have a little slack. After they are fastened end to end, the piece with the pulley is sprung back into place and fastened with screws.* If every thing has been done right this will take up the slack of the rope, and make it taut.

If there should be enough demand for a contrivance of this kind we would have it listed in our catalog, and I am sure there would be a good demand if bee-keepers only knew its value; but for the present I have given full particulars how to make it, so that those of a mechanical turn of mind can, in these long winter days, have one or more of these poles in readiness for next season.

IS SWARMING CONTAGIOUS?

Eighteen Swarms all in One Bunch; A Remarkable Experience.

BY F. E. BROWN.

Will bees swarming attract those that are in their hives, or, in other words, will the swarm while in the air cause others to leave their hives? I am inclined to think that they do, under some circumstances. I will try to describe an experience that I had in that line on one occasion. It was when I was located in the Coast Range, and the apiary was situated in a canyon where the mountains came all around except one side, forming a little horseshoe cove. The mountain was steep and high, so the bees had to fly around over the apiary when swarming.

On this occasion I had 200 swarms, and they were all in a bunch with a few trees scattered through the apiary. It was the 5th day of April when an assistant and myself came to the bees. I was surprised to hear a swarm out. They settled on a small cedar-tree some 10 ft. high, and quite slender. While we were preparing a hive for them there was a shout of another swarm. Soon it settled on top of the other. We then shook them off into two separate hives; but there was another swarm coming from another hive; and before they settled, the other two came out from the hives they were placed in, and joined the swarm then in the air. Times began to get interesting. Soon two more came out from the apiary and joined the other three. This makes five that were in the air at one time, and it was at this point that the fun began; and of all the sweet music that was ever heard from bees emanated there. The morning air was still and clear; and the roar of the bees was all that could be desired in that line.

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*Use screws so that the piece may be removed for the future, to take up slack when necessary.

But, what could we do with the bees? Soon they began to settle on the top of the little cedar-tree, and soon the tree began bending to the ground, when I ordered some hives to be brought and placed around the tree. Then we began shaking off and carrying away; but other swarms kept coming forth, and the ones that we hived would stay only a few minutes and then come out and again join the great army of bees that were still clinging to the tree and flying about it in such a way that it was hard to get to the tree, as the very air was full of bees—bees everywhere; and such a roar of bees! To make a long story short, we would shake off the bees into boxes and carry them off; and as fast they would come out and go back to the swarm on the tree, while all the time there were other new swarms coming forth, and we kept this up until noon, when, being tired, and not meeting with success, we went to dinner some one-fourth mile down the canyon. While we got out of sight of the bees, there was the music still.

On returning, the tree was a perfect arch, the top resting on the ground, completely covered with bees, and, for about two feet through, a solid mass of them, and still they came out, and the air was as full as I ever saw. We began once more to shake off and carry away, just as you do in the East when thrashing oats, measuring out and carrying away. We kept account of the swarms that came out, as far as we could, and we knew of 30 that came out during the day. But, to go back a little.

About the middle of the afternoon we gave it up as a bad job, and sat down to see what would be the outcome. While thus seated I asked the man who was helping me what course he would have taken had this occurred when I was away. The answer was that he would have rolled his blankets and started across the mountains, seeking other occupation. At about 4 o'clock they all took wing, and, as I supposed, they were going to take across the hills instead of my man; but, not so; they had decided to try another tree for a while; but when that multiplied multitude of bees came from that tree and rounded up over the apiary it was a sight to hear and see; and, to our surprise, the bees that were in their hives apparently quiet came out, and left brood and honey.

I suppose some are anxious to know how we managed the bees. I was quite anxious at that particular time; but as the sun went down behind the western mountains, about four o'clock, and the evening shades brought the usual coolness with it, the bees began to go back to their old homes again, and we had better success in keeping the swarms in the hives; and when the day's work was fully over and all quiet, there were just 18 new swarms.

The next day the same thing occurred again, and the 18 swarms of the day before were just as frantic as they had been the day before; and all that spring, when we had heavy swarm days, the bees from new swarms would desert, leaving brood and honey. On some occasions the hives would be nearly full of freshly gathered honey and plenty of brood.

Hanford, Cal.

[Well, friend Brown, it looks as if you had broken all the records—or, rather, your bees have. Eighteen swarms in one bunch, and eighteen swarms in the air at one time! Did any one ever hear of the like of it before? I would have given something to hear that mighty roar made by something like a million or more of wings.

There is any amount of evidence to show that one or more swarms in the air at one time will induce others to go forth; but as a general rule the average bee-keeper is not troubled by more than two or three swarms in a bunch. Under those circumstances he usually divides them by the dipperfuls into two, three, or four. These are then put into as many hives, and compelled to go to housekeeping, even if each family, as it were, is made up of members of two, three, or more other families.—ED.]

J. P. ISRAEL.

BY J. M. HAMBAUGH.

Died at his home in San Diego, Cal., at 11.30 P. M., Dec. 31, 1898, Mr. Joseph P. Israel, in the 76th year of his age.

J. P. Israel (alias Skylark) was born in Pittsburg, Pa., in November, 1822, and was married to Miss Elizabeth Falkner, of that city. As a result of their marriage, four children were born to them, two of whom are still living—Mrs. Cordelia Lane, of Pittsburg, Pa., and Mrs. B. R. Robinson, who has been living with her father since the death of her husband many years ago. Mr. Israel came to California in 1849, but did not become a permanent resident of that State until 1882, when he moved to Escondido. It was here that the writer became acquainted with him, and our acquaintance ripened into true and lasting friendship. Little did we realize, when we wrote a biographical sketch of him, which was published in GLEANINGS for July 15, 1898, that we should so soon be called upon to pay the last tribute of respect to his memory. Mr. Israel's work as a writer is well known and remembered; and his quaint humor and at times sarcastic tilts that were so characteristic of his writings will long be remembered by those who saw fit to cross pen-points with Skylark. Mr. Israel was a highly cultured and polished gentleman, and, above all, a patient, forbearing, true Christian. His daughter has said, never did she know him to be angry. "He was a Christian in every act, word, and deed." He was well versed in Scripture, and a Baptist by faith. A letter from Mrs. Robinson states that her father was in his usual good health and cheery mood up to the time of his departure to bed, which was nearly ten o'clock on the night of New Year's eve, she retiring to her bed in a room adjoining. She had retired but a short time when she heard the voice of her father calling. Springing to his bedside she found him suffering from what he termed a cramp in his chest. She did all in her power to relieve the pain by local applications, but his condition became alarming, and, against his desire, she sent for two physicians.

"No, my dear, do not send for the doctor. I shall be all right in half an hour." These were his last words, for but a few minutes elapsed when a return of the awful pains seemed to paralyze him. Almost without a struggle his spirit calmly departed, and with the dying of the old year the spirit of J. P. Israel took its flight to don the robe of immortality; and as the morning star heralds the approach of the coming dawn, death's messenger to him was the dawn of the morning that knows no night, measured only by eternity. Blessed assurance! The great heart was stilled, but his spirit for ever at rest. The only persons present were his beloved daughter and nephew; and while our heart goes out in sorrow for her who has so patiently and lovingly administered to the needs and wants of her aged parent for years, we can only say, "God's holy will be done; he giveth, and he taketh away. Let us bow in humble submission to his divine decrees." Let us trust that there will be a reuniting of loving hearts across the river, where sorrow, suffering, and separations are no more.

JOSEPH P. ISRAEL.

Mr. Israel was interred in Mount Hope Cemetery, and a large concourse of citizens paid their last tribute of respect by following the remains to their last resting-place.

Escondido, Cal.

CALIFORNIA ECHOES

BY J. H. MARTIN.

February 10th finds Southern California with only about three inches of rain for the season in the vicinity of Los Angeles, or only about eight inches for two years, or about as much as falls in one good long soaking rain in the East.

Our two inches in January gave vegetation a start, and sage is making a fair new growth. Mr. Shattuck, an old-time bee-keeper, told me that, if we had rains the latter portion of February or in March we should have a honey-yield. While there is life and the blue skies above us there is hope for the bee-keeper.

A carload of bees was recently moved from this county to the alfalfa-fields of Arizona.

Mr. Frank J. Farr, of Pasadena, in this county, who had good success in moving bees to Utah last year, is getting together another carload for the same destination this year.

There will be an exodus of many bee-keepers if the dry weather continues, and there will be an exodus of several thousand colonies of bees to the sweet by and by, as the bee-keeper will make an exodus into some other business.

Mr. Farr says that the bee-paper which publishes the names and addresses of correspondents has his unqualified approval, as the name and address of parties in Utah, who had a communication in GLEANINGS, led to correspondence and finally to a removal of bees from California to Utah. Mr. Farr says that name and address were as good as a thousand dollars to him. Bee-journals that give only the name of the writer of a communication, and only the county in which he lives, take warning.

Judge Noah Levering is preparing to migrate again to his northern apiary in Siskiyou Co. That portion of California has received a good rainfall, and ought to yield a good amount of nectar. As to whether the Rambler will or will not migrate with him is still an open question.

Mr. and Mrs. Frank McNay, of Portage Wis., after spending the winter in this city of the angels have returned to the East. Mrs. McNay was just as good an angel as though to the manor born. The best wishes of quite a number of bee-keepers will follow them to their home. They are good people to have around.

Mr. George W. Brodbeck has purchased a goodly portion of land near Calabasas, and is at present improving it and putting it into shape to receive his apiary. Mr. B. winters his bees in the suburbs of this city, and moves his bees to Calabasas only as the season warrants.

Mr. B. thinks it will be for his health to live out in the hills where the odor of the sage brush, the song of the mockingbird, and the savory quail and rabbit are all at hand. When he gets established he proposes to keep open house to all of his bee-keeping friends.

Mr. J. M. Crow, a bee-keeper who moved to this city from Encinitas, San Diego Co., has built his nest in the rough and rugged canyon of the Little Tahunga, located his apiary there, and also has a good prospect for developing a gold-mine. All good bee-keepers are welcomed to the Crow's nest.

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REPORT OF INSPECTOR OF APIARIES.

An Interesting Report.

BY WM. M'EVOY.

During 1898 I visited bee-yards in the counties of Essex, Middlesex, Huron, Grey, Wellington, Simcoe, Cardwell, Norfolk, Wentworth, Lincoln, Peel, York, Ontario, and Victoria. I examined 100 apiaries, and found foul brood in 32 of them. Nearly every bee-keeper who had foul brood in his apiary wrote me private letters about it, and, working on the rule of doing to others as I should like to be done by, I treated all such letters as if they were marked strictly private, and always will. By working along this line in a quiet way, and helping the owners of the diseased apiaries to cure their colonies, I have been able to find out more about who had foul brood in their bee-yards than could or will ever be found out in any other way. I am very much pleased with the way the owners took hold and cured their apiaries, and particularly so with two that were cured by two ladies in the county of Simcoe. These two ladies did the best work in the shortest time that I ever had done, and with two of the worst foul-broody apiaries that I ever handled. Scarcely one week ever passes now without my receiving more or less letters asking questions about foul brood and dead brood of other kinds. I have also received very many samples of comb with dead brood in, and about seven out of every ten of these were genuine foul brood. The most of the letters and samples of comb with decayed brood in, came from many parts of the United States, and the others from bee-keepers in the Provinces of Ontario, Quebec, and Nova Scotia

About how long would foul brood be in a colony before it would become very bad with the disease? was one of the questions asked by several of the writers. I answered, saying, sometimes not more than one week; in others, over one year; but in most cases, less than three months. Just how soon or how long it would be before any diseased colony would become very bad with foul brood would depend entirely on how much or how little of the honey was diseased. The honey, to become diseased, must be stored first in cells where foul-brood matter had dried down; and when any honey is removed from such diseased cells to cells partly filled with sound honey it will infect the latter also. Foul brood is spread through a colony just in proportion to the amount of diseased honey that is fed to the larvæ. I sent Mr. Gemmill out a part of the time and he inspected 15 apiaries, and found foul brood in three of them. I am very much pleased to say that neither Mr. Gemmill nor I had to burn one diseased colony. We found all parties willing to cure, and gave them a chance to do so. I believe that the Province of Ontario has fewer diseased apiaries for the number kept than any other country in the world, judging by the number of letters that I have received. For the very nice way that Mr. Gemmill and I have been treated by all parties while on our rounds through the Province we return to them our most heartfelt thanks.

Woodburn, Ont., Can., Jan. 10.

[Foul brood must, some ten or fifteen years ago, have made fearful headway in Ontario. If I mistake not, a once leading bee-keeper is partly responsible for this state of affairs. In selling bees, it is said, he was not careful in the stock he sent out. In fact, I have been told that he said foul brood was so easily cured it did not make any difference, as every one could cure the disease in his own apiary. Whether this is so or not, I can not say; but if true, his carelessness has cost the bee-keepers of Ontario an immense sum of money. Very fortunately, foul-brood legislation was secured, and a careful and thorough inspector, Wm. McEvoy, was secured to put into practical effect the foul-brood law. I am glad to know, too, that an assistant, as careful and conscientious, has been secured in the person of F. A. Gemmill. Two better men could hardly have been found throughout Ontario, and it is safe to assume that, through their untiring efforts, the disease foul brood will in time be an almost unknown quantity.—ED.]

* * *

TRAVEL-STAIN.

Propolis on the Cappings Due to the Travel of the Bees.

BY A. E. MANUM.

Mr. Editor:—In Jan. 15th GLEANINGS I find a very interesting article from the facile pen of my good friend and benefactor Mr. J. E. Crane. I read the article with much interest; but as the conclusion he arrives at is at variance with my observations and my understanding of the nature of the honey-bee, I beg to disagree with my friend on some of the *fine* points he makes regarding the cause of travel-stain.

Although Mr. Crane lives only 12 miles from me, where I could easily reach him in person, I will, instead, and with your permission, Mr. Editor, use GLEANINGS as a "cushion" in the attempt to make a "carom shot" at my friend; and if I succeed in making a hit I hope it will have the desired effect in drawing him out still further on the subject of travel-stain.

Knowing as I do that Mr. Crane is a veritable encyclopedia in bee science, I feel sure that, if he is hit hard enough to stir up his ire, he will open his book of knowledge from which all may read and receive further light.

Mr. Crane asserts that the discoloration often seen on cappings is not travel-stain caused by dirty feet, as generally supposed.

He says, "I consider the whole idea of travel-stain as a foul slander, . . . and as infamous." He goes on to prove that the cause of discoloration is due to some foreign substance which the bees gather and incorporate with—or weld to—the wax as a means of economy, and mentions several substances which may be used by the bees to adulterate their wax. Mr. Crane makes one good point in his argument; and this is in the matter of the blue cloth to which he refers, and which would appear quite conclusive if left where he drops it. He also accuses the bees of making use of large quantities of propolis as an adulterant. He says: "It is used late in the season when *wax is scarce* . . . and in such quantities as to be easily seen by the naked eye."

Now, my observations lead me to believe that bees produce wax in accordance with their requirements, although it would seem that they dislike to draw upon their already accumulated store for the purpose of producing wax late in the season, and hence leave some of their work undone.

My friend Crane asserts that the bees go about the interior of the hive in search of particles of comb, cappings, dirt, propolis, or what not, to weld on to and stretch out their scant supply of wax. This is contrary to my observations, and I am, therefore, not yet prepared to accept that theory; and I believe he accuses the bees wrongfully. That the surface of comb honey is sometimes soiled, I admit; but what is the cause of this discoloration? Must we accept the theory that bees purposely make use of foreign substances for the purpose of economy? *I can not.*

Mr. Crane makes mention of the under side of the cappings being stained as well as the outside. I would account for this by the fact that, while the bees are "slowly" doing their cappings late in the season, as he says, their feet being more or less soiled, from various causes which I will explain further on, they stain the inside of the cappings as well as the outside while manipulating the wax. To my mind this would account for the "blue stain" that Mr. Crane noticed on some of his cappings.

You are well aware, Mr. Editor, that wax is very susceptible to any stain—so much so that it is difficult to cleanse when once it is stained. My theory is that the blue cloth referred to, being picked at while capping was being done, more or less of the particles of the bluing adhered to the hair-covered legs and feet of the bees; and the wax being soft, and in a retentive condition, more or less of the coloring adhered to the flakes of wax while being manipulated and formed into cappings. Again, it is well known that wax is a natural product of the bee, and, we suppose, produced at will. It is secreted from the under side of the abdomen, and from this locality the small white flakes are removed to the mouth by the forward feet of the bees; and if, perchance, their feet are soiled by any foreign substance, such as bluing, pollen, propolis, or dirt, it seems quite possible that some of this dirt may adhere to the particles of wax during the transference and manipulation, and thereby cause discoloration, both on the under side and top of cappings. Here is where I think Mr. Crane misjudges the bees. The coloring-matter he finds in the cappings I believe to be accidental, and not intentional, as he would have us believe. He intimates that bees make use of propolis in capping their honey, as he has seen large quantities of it on the cappings. Now, I am of the opinion that the cause for its being so very observable on some cappings is due to travel-stain, as I have never noticed it except after there has been an abundance of propolis gathered; and as they use their fore feet to form the pellets on their hind legs, as well as to remove it from the hind legs after reaching the hive, it is very likely that more or less of this sticky substance *must* adhere to their feet; and as bees usually fly home, the feet are not relieved of it before reaching the hive; so that, in walking over the combs, they are relieved of the sticky substance by its adhering to the waxy cappings. It is also the same thing over in pollen-gathering and pollen-stains, commonly called travel-stains.

Mr. Crane gives the bees great credit for neatness, and justly so; but let us see, Mr. Editor. Did you ever work among your bees 30 minutes, handling brood-combs, without soiling your fingers? *I* never did. Then, if the combs will soil the operator's fingers, why not also the feet of the bees? and they in turn soil our nice white section honey if left on the hive a little too long. Furthermore, what is it that stains our new white separators, edges of sections, and new frames, if not travel-stain?

My opinion is that not *all* discoloration is due to dirty feet, but partially due to their pollenized bodies, as we often see bees pretty well besmeared with pollen, which adheres to them while visiting large flowers, such as pumpkins and squash blossoms; and while passing each other between combs it is not unlikely that occasionally their bodies rub against the cappings, when the pollen will adhere to the same, and thereby cause more or less pollen-stain.

Bristol, Vt.

* * *

WHAT COLORS THE WAX OF HONEY-COMBS?

An Interesting Exposition of the Subject.

BY THADDEUS SMITH.

My attention was directed to this question several weeks ago by reading something on the subject by Mr. D. L. Adair, in the old *American Bee Journal*, Vol. III., page 208; and again the matter has been brought to mind by Mr. Crane's recent very interesting article on so-called travel-stained combs, in GLEANINGS for Jan. 15. But as the question above has not been fully or satisfactorily answered by Mr. Adair or Mr. Crane, nor by any one else, so far as I know, I propound it to our successful and scientific bee-keepers for an answer. Mr. Crane does not discuss the question in its broadest sense, nor make an attempt to answer it. He only shows how the cappings of some comb honey becomes colored and is erroneously called travel-stained. If I understand him he thinks that it is all caused by the incorporation of some foreign substance with the natural wax of the bees in the cappings of the honey cells. It may be of colored wax taken from old combs, colored cappings from hatching brood-combs, propolis, or other foreign substances. This he has no doubt shown, sometimes, is the cause of colored honey-combs. Mr. Crane's position and arguments would lead us to the conclusion that honey once capped over does not change its color, or become travel-stained, by being left on the hive. His main argument for this conclusion is based upon the fact that he found the cappings, taken from stained honey, to show as much (or nearly as much) color on the under side next to the honey as on the outside. He argues that this supposed-to-be outside coloring matter could not possibly penetrate through to the wax so as to show on the inside; therefore it must have been incorporated with the wax when the cappings were put on.

This argument, or, rather, the superficial observations that led to it, are faulty. Wax in thin layers is translucent. If colored on one side the color will show *through* on the other side. To verify this I had my eight-year-old grand-daughter get out her paint-box and color some cappings, on one side only, in various shades, from light cream to brown, and even blue. I placed the pieces on a sheet of paper to dry, and when examined I found the color to *appear* nearly as dark on the under side as on top. I think that most bee-keepers will not be ready to agree that all the coloring-matter on honey is incorporated in the cappings.

But my original intention was not to discuss Mr. Crane's position. I had determined to call attention to the coloring of combs before I had seen his article. I want to get down to the root of the matter: What causes the comb, that is so beautifully white when first made, to soon change its color to yellow, then brown, and finally nearly black? I may be answered, flippantly, that it is because it is old—old comb turns yellow. Because brood is raised in it, raising young bees in it makes it dark; they foul it, you know, and the shell of the larva remains in the cell, and that colors the comb. The combs are colored by the bee-bread and the pollen and the propolis that the order-loving insect has left scattered around loosely. These substances are very highly colored, don't you know? Yes, they become "travel-stained." The accumulation of dust (from the flowers) and dirt upon their feet and their bodies during their long hot journeys in search of nectar is all brought home, and goes to stain the combs.

But these answers do not satisfy my inquiry. A piece of virgin comb taken away from the influence of the bees, and kept from dirt, will never turn yellow by age. Combs that have never been used for breeding, and that have never contained pollen, when left in a hive under the influence of a large colony *do* turn yellow. The other answers need no comment.

I have alluded to an article written by Mr. D. L. Adair, on "The Economy of the Bee-hive," published in the old *American Bee Journal*, as heretofore noted, in which he says something about the coloring of combs. Mr. Adair was writing to sustain his theory that bees could live without a continued supply of fresh air, and only incidentally mentioned the coloring of combs; but that mention brought the inquiry to my mind. He spoke of the compensating laws of nature in the animal and vegetable kingdoms. The animals, in breathing the air, throw off the carbonic acid, which is taken up by the leaves of the plants, and this restores the air to its original condition; so in a properly constructed *aquarium*, furnished with water-plants, snails, etc., the fish breathe the air and produce carbonic acid, which the plants make use of and restore the air. The snails eat the foul matter, and are themselves eaten by the fish. This is a short synopsis of a part of his argument. I want to make a quotation. He says: "God did this, not man. When he created the fishes he made an aquarium for them. Was he less mindful of the 'little busy bee' when he gave it a habitation in holes in trees, where, from the very nature of things, they would be frequently deprived of fresh air for months at a time? . . . . Experience says not. The bees produce, by breathing, carbonic acid, which, if there were nothing to take from it the carbon, would destroy them. There are no plants to do it; but we find in the hive several things that may answer the purpose. The comb, it is well known, is at first pure white, but first turns yellow and then dark; and as it gets older it becomes perfectly black. Something must produce this effect. May it not be this very carbon that it absorbs that colors it? It is further known that, the older the comb, the heavier it gets. This is not only true of the comb in the middle of the hive where the breeding is done, but more so at the top where the honey is stored. It may be said that carbonic acid is heavier than air, and therefore settles below. We have shown that it first rises from being heated and thus rarefied."

We may not all agree with Mr. Adair's theory of ventilation, nor with his suggestion that combs are colored by the absorption of carbon; but we must admit that there is, in some way, a close connection between the clustering, living, and breathing of the bees upon the comb, and the coloring of the same. The more densely the hive is populated, the sooner the combs become yellow. If the colony is so large that a part of the cluster extends up into the super, and cling to the lower part of the section honey, and are allowed to remain there until cold weather drives them down, the lower ends of those sections will be colored. In weak colonies, and combs some distance from the cluster, the process goes on more slowly, if at all. The small colony doesn't seem able to get up steam enough to carry on the process of coloring, if I may be allowed to use such an expression about a process I know nothing about. Mr. Crane says, "I had less travel-stain when my bees were allowed to swarm than when I try to keep every swarm strong." The strong colonies stained the honey most. And, again, he illustrates this by another incident, although he gives it for a different purpose. A strong queenless colony was put into a hive filled with foundation in July, and allowed to remain queenless; and after four months the hive was found full of sealed honey almost entirely free from travel-stain. Of course, this queenless colony soon began to become weak.

Does this coloring process, or matter, whatever it is, penetrate the very body of the wax? Melt a piece of virgin comb carefully in clear water, and the result is white wax. Melt a piece of comb that has never had young bees or pollen in it, but has turned yellow in the hive, and we get yellow wax—the color of all commercial wax that has not undergone the process of bleaching. Some chemist might try the effect of carbonic-acid gas upon pure white comb, and test Mr. Adair's theory.

Pelee Island, Ont.

[When Mr. Crane was here he lifted some of the cappings of some of our travel-stained honey and showed the discoloration on the back as well as in front. But Mr. Smith seems to be of the opinion that color or stain, while only on the surface, may show through the wax, owing to its partial transparency. To prove or disprove the point I went at it in this way: I took several sections conspicuous for their travel-stain. Knowing that gasoline is a solvent of wax, I took a piece of waste, saturated it, and rubbed it lightly over the soiled parts of the capping, thinking that, if the stain were simply on the surface, this gentle rubbing with the gasoline waste or rag would remove a very slight film from the face of the cappings, taking with it the stain; but, no matter how much I rubbed, the stain remained as long as the capping; for if I rubbed long enough, the capping would entirely vanish, the gasoline gradually absorbing the wax.

I went over quite a number of sections in this way; but in no instance did I find that the stain disappeared, for it seemed to be *clear through* the capping. Previous to this I tried soap and water; but it had no more effect than if the face of the honey had not been touched at all.

I next took a sharp-pointed blade and lifted several of the cappings of the combs, and in some instances, at least, it seemed as if the stain itself was on the under side rather than on the face. Under a strong magnifying-glass I pulled the cappings into shreds, but the stain seemed to be in every particle.

A travel-stained face of comb honey may have a yellow look or yellow spots, or it may have chunks of red propolis scattered here and there. These latter can be removed with a sharp knife, showing that they are wholly on the surface of the capping. But when the cappings have a *yellow* appearance, the stain seems to go clear through the capping. Now, this yellow, according to my theory, is caused by propolis; for I notice that honey is more apt to be travel-stained toward the close of the honey season, or about the time the bees have more time to bring in propolis. It may be, as friend Manum suggests, that they get their feet, their mandibles, and their bodies so thoroughly stained with the yellow stuff that the wax they work is necessarily stained; and, as a consequence, we have, toward the close of the season, or after it, yellow cappings. And there is still another point to be considered; namely, that these yellow cappings are apt to be near the wood of the section—more particularly at the bottom. Why is this? Is it not because of the proximity of the propolis-daubed wood?

Mr. Smith is correct in saying that new comb just built is always white and flaky, and that after it has been in the hive a while it turns yellow. It may be that carbonic-acid gas in the hive has something to do with it; but I should more think it is due to the stain from propolis. In our foundation work we find that wax very readily takes stain of any kind, especially of dirt.

After writing the foregoing I read the article of friend Cormac, just following. It seems he tried washing-soda or carbonate soda, the action of which on wax would be about the same as that of gasoline. His results were not the same as mine—at all events I am wondering whether he or I drew the wrong conclusions. So I suggest that others try it and report. If Mr. Cormac is right, and if the soda has a different action from gasoline, then we could make No. 2 honey into No. 1. I can scarcely credit it. As this form goes to press before I can get the washing-soda to try, I'll have to let it go for this time.—ED.]

* * *

TRAVEL-STAIN ON THE SURFACE OF THE CAPPINGS.

Washing it with Carbonate of Soda.

BY JAMES CORMAC.

In GLEANINGS for Jan. 15 the article of J. E. Crane, "Travel-stain; What is It?" was read with considerable interest, inasmuch as no discussion of the matter has come under my observation heretofore, that I recollect. The writer cites many interesting facts regarding the capping of cells filled with honey, where the bees have incorporated foreign substances with the wax, which has been mentioned heretofore by correspondents, and attributes such to pollen-stains as a large element in producing what is commonly called travel-stain. He remarks, "Every bee-keeper is supposed to know what travel-stain is; but I have sometimes wondered if I do," and refers it to that slight tinge of color we find on or in cappings of surplus combs—slight near the top of sections, and increasing toward the bottom, where it becomes a light cinnamon or yellow or brown. The discoloration is usually attributed to the bees' feet being dirty, which is far from being the cause. As surplus combs are drawn out sometimes from the center, if a full sheet of foundation is used, or near the top thereof if a starter is used, the center or upper cappings being formed before the bottom cells are drawn or filled, if dirty feet were the cause, that part first capped would present stains as much as or more than the bottom cells, which are the last to be completed on full sheets of foundation and the upper corner cells where starters are used the same, the travel over the center being greater than at the bottom (last built), where the stain is almost always darker, it stands to reason if attributed to dirty feet; but not so. Although foreign substances are often incorporated in the wax, that does not color the comb; and if we lift off a capping from the cell, and hold it up to the light the semi-transparency shows the color of the outside, the same as glass shows dirt, which puzzles the housekeeper, often, to tell which side of the window needs wiping. The color is not in the wax, but on the outside, and is placed there by the bees with care and deliberation, and for a purpose.

All combs when built (they are not drawn) are formed from the scales of wax as excreted by the bee, and pinched by their mandibles till they adhere together. The sides of the cells are porous, also the cappings, and will admit moisture from the breath of the bee condensing within the hive when ventilation is impeded by cold air, and, unless excluded from contact with the honey, would be absorbed and cause the sweating and souring, detrimental as food to the bee. To prevent this the bee varnishes all sealed sections at a time when resinous vegetation is secreting propolis, so called. Unless the cells are reserved for uncapping for larval food there will be no propolizing until very late, and will be slight because of scarcity. There is great difference in the amount of this so-called travel-stain as applied to the combs by different colonies, as well as in different localities. In this prairie country in an early day, say thirty years ago, when much was unsettled, wild flowers were abundant, and excretions of gum or resin were plentiful, so the bees made use of it to excess compared with what is now gathered. Honey at that date was ruined for market by the amount of propolis spread over the combs, it being applied in chunks.

To convince yourself that this stain is mostly propolis smeared on by the bees, and not incorporated in the wax, take some soda carbonate, dissolve it in water, apply the solution to the comb with a soft brush. Now try some propolis scrapings; result, a stain like yellow paint, which will rinse or wipe off from the comb and leave the comb very much whiter—a fair No. 1 section, changed from a discarded travel-stained one.

Des Moines, Iowa, Jan. 20.

* * *

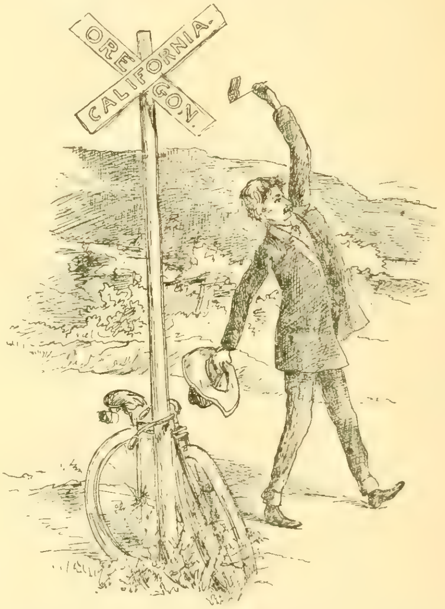
RAMBLE 162.

Crossing the Boundary into Oregon.

BY RAMBLER.

Yreka is located in a fertile valley, but it is not much of an alfalfa-growing district, consequently there is no one engaged in the business of bee culture here. About the only honey-production that was ever practiced here was by an old miner who hunted and robbed bee-trees, and became so proficient in the business that he was known as Honey Jake. Now and then a nice hunk of honey would sell for 50 cts., while a mashed or broken lot would be greatly depreciated in price; but the miners were not over-particular about the mussed condition, for a real lover of honey would patronize Jake whenever the buckets appeared with any sweetness in them. Honey Jake never tried to domesticate the bees. His ambition went no further than to cut the tree or pry open the rocks, secure the sweets, and leave the bees in a forlorn condition.

At Gazelle, on the S. P. R. R., and almost in the shadow of Shasta, we find the noted Edson ranch, upon which are several thousand acres of alfalfa. The Edsons are not only enterprising along the lines of alfalfa and cattle raising, but have established bee-ranches, and make considerable shipments of honey. They are in the ideal condition so much extolled by the cattle-man, wherein they have command of the northern and southern markets. I judge, however, that, if there is any gain in choice of a market, the railroad will take a good share of said profit, for the freight rates from this point are excessive.



I broke away from Yreka about noon, and, with the aid of my wheel, sought to strike the railroad about 18 miles north in time for the north-bound train; but owing to quite a little up-grade, and the necessity of leading my wheel, I did not make Klamathon, the station, in time.

But I did not care a continental. I found quarters in a nice little temperance hotel presided over by several nice sociable ladies of various ages, and I made myself so agreeable, that, in the evening, I was invited out to the only entertainment the town afforded, and that was to the saw-mill. This mill is the center around which all Klamathon revolves; in fact, it is the life and hope of the town; for everybody works there except the women. The mill was running night and day; and under the brilliant electric lights it was no small sight to witness the rapid manner in which logs were handled and converted into boards.

The immense band-saw would cut its way through a huge log 13 feet in length in just six seconds; in three seconds the log would be run back and set for another cut; then what the ladies called the nigger (a square post with a big spike in one side of it) would bob up through the floor and flop that log over as quickly as you could make three winks.

From the rate they were working that night I reckoned they could saw enough lumber in one day for all the bee-hives bee-keepers will need in California in one year, and a good year at that.

Take it all in all, this entertainment in the mountains, with three ladies to show me around, was much better than a theater, a minstrel show, or even a football game, for which I have a special weakness.

I broke right out again the next morning on my wheel for Ashland, Oregon, 32 miles distant. I had to make this break or wait ten hours for the train, so I broke. I soon came to the mute but eloquent sign that marks the line of division between California and Oregon. I thought it fitting to celebrate the occasion, and carefully dismounted, took off my hat, unfurled the little American flag I had with me, and, with due respect for our sister State, passed into her territory. My respect continued to grow that day until it reached the altitude of about 4300 feet, or, in other words, I passed over the Siskiyou Mountains, and had to walk at least six miles and push my wheel ahead of myself up a steep grade. I had the consolation, though, of believing that it would be down grade on the other side, where I could make up for lost time.

Another feature was highly gratifying. The water, that often appeared in crystal springs or musical rills, was cold, sweet, and invigorating, and I can tell you that Siskiyou Mountain produces the best water I ever drank, and the memory of the refreshing draughts I sipped from every spring and fountain still lingers on my palate.

For at least ten miles that day I passed over the most lonely road I ever traveled — not a house, human being, animal, or scarcely a bird. It was an excellent road for a hold-up; but the fellow who does such things evidently did not expect the Rambler.

I have traveled over and lived in many lonesome places; but I hardly ever think of the robbery contingency, and I am more and more impressed with the fact that we have a very good country in which to live, and where the law makes it unhealthy for the existence of brigands.

I have found quite a number of eastern people who look upon any portion of our country west of the Rocky Mountains as a wild and woolly region; and when they come here they tuck a revolver into their grip; but, my dear friend, if you contemplate coming to California don't waste your money on deadly weapons. You will not need them, and are more liable to shoot yourself than to use them on any other person. People are just as safe on the Pacific coast as they are on the Atlantic side.

I rested awhile on the summit of Siskiyou Mountain, waved my bandana in a sort of imaginative way to the bee-keepers of the south and the east, and then, with a fir-bush trailing behind, went whirling down the road that wound through the tangled wild woods. Acorns were plentiful here, and the only animal I disturbed on the Oregon side was an occasional pig busily crunching and fattening on them. And it was down grade to make you smile—a drop of 2252 feet in 13 miles.

I was quite interested in Ashland, whither I was tending, for it is one of those towns where the late Mr. Levering marketed quite an amount of honey. He employed teams to freight it out from Siskiyou County; but the expense of transportation, the competition of other bee-keepers in Oregon, as well as the low price for which honey could be purchased and delivered from San Francisco, reduced his net profit to a small figure.

There are a few bee-keepers within a few miles of Ashland, and after a fair night's rest I proceeded to hunt up at least one of them. My landlord informed me that Mr. W. C. Myers was a bee-keeper of some local note. "And," said he, "you will probably find him about this time of day at the creamery just up the street." So I hied away to the creamery. On my way I overtook a man who had the appearance of a well-to-do farmer, and I asked him if he knew a man by the name of Myers.

"Why, yes," said he, "I ought to know him, for that is my name;" and Mr. Myers and I proceeded to the creamery together.

Mr. Myers is not extensively engaged in bee-keeping. He makes it a sort of side issue. He is one of the most prosperous farmers near Ashland, with an elegant house and commodious barns. I was especially interested in the beautiful Shetland ponies on his ranch. For several years he has made the breeding of these diminutive horses a specialty, his taste running more in that direction than with bees, and, withal, with more certainty of profit.

He has some of the finest Shetland stock to be found on the Pacific coast.

While at the creamery Mr. M. introduced me to another bee-keeper, who was evidently an amateur, for he could boast more in one minute about what his bees could do than Mr. Myers would in a lifetime.

From the few bees kept in the vicinity I should judge that the location is not a tiptop one. Alfalfa is grown here, but it is cut before bees can work upon it. There is white clover in abundance, and sweet clover is getting to be quite plentiful; but it is regarded as an obnoxious weed. If the weather is favorable in the spring, bees ought to do well on fruit bloom, for there is much of it. Ashland is at the upper end of the Rouge River Valley, and all of this region is noted for the excellence of its fruits. Apples and pears from this valley have sold for fancy prices in New York and in London.

Mr. Myers said that, if his bees could work on the poison oak that flourished in the hills a few miles distant, he thought he could get much good honey from it. This oak is a bush growing to a height of six or eight feet; has a profuse bloom, and secretes much nectar; the honey does not partake of the poisonous nature of the tree, but is of fine flavor and color. Mr. Myers had a novel idea of getting his bees to work upon it, but which he had never put into practice. The oak, I understand, is over five miles from his apiary. Instead of moving his apiary into the vicinity he proposed to take a few bees in cages from a number, or all of the colonies, to the hills, and liberate them near the flowers. Finding themselves in the midst of plenty they would fill themselves and convey the good tidings to the apiary, and there would be a general stampede to the new field. Mr. Myers asked me if I thought the plan would work. In my reply I had to infringe upon Dr. Miller's prerogative, and say, "I don't know."

However, in my experience with orange bloom I am inclined to think that, for a honey-producing flora to entice bees a long distance, the field must be large, the odor strong, and the nectar abundant.

Mr. Myers gave me the names of several bee-keepers within a few miles of Ashland, one of whom had about 100 colonies; but the roads needed a high-stepping steed, and mine was not of that kind, so I contented myself with the information given by Mr. Myers, and proceeded down the Rouge River Valley to Medford.

REPORT FOR 1898.

We commenced in the spring with about 275; increased to 325, and produced 3694 lbs. of section honey, 895 lbs. of broken comb, 14,595 lbs. extracted; grand total, 19,194 lbs. This country averaged from ½ to ⅔ crop, owing to whether or not the bees received the proper attention. We have bought 125 more colonies, and will begin 1899 with 450 to 500, besides a large lot of nuclei.

Hutto, Tex., Dec. 7. O. P. Hyde & Son.

ANSWERS TO SEASONABLE QUESTIONS BY G. M. DOOLITTLE.

WIDE FRAMES AND SEPARATORS.

Question.—Will you please tell in Gleanings why tin separators are not as good as wooden ones or the fence? I am using wide frames with tin separators tacked to them, so arranged that a bee-space is left at top and bottom so the bees can work all through the surplus apartment. Is this not as good as any thing I can have? And can not the separators be cleaned of bee-glue much easier than could the fences?

Answer.—The above-described wide frames and separators are just such as I have used for the past 25 years, and so far I see no reason for changing my surplus arrangement. As my honey has always brought as much as, or a cent or two more a pound than, the highest market quotations, I see no reason why I could secure better prices were I to change my mode of securing surplus. Some of my fancy honey, shipped on commission this last fall to a Boston firm, sold at 20 cents per pound, while 14 to 15 cents was the highest market quotation for the best fancy in that city. One of the great advantages of wide frames is that the bees do not have access to the outside of the sections at any point, except the edges of the horizontal pieces; hence, when filled, they are as *new and perfect* as they were when put on the hive, requiring scarcely a bit of scraping to clean them of propolis, or bee-glue, as our questioner calls it. All that has been said of late regarding section-cleaners finds no place with the apiarist who uses properly constructed wide frames. Yea, more: All the expense required in constructing one of these section-cleaners, or in buying one, is entirely saved by using such wide frames. More still: All the time required in using them can be taken for the improvement of the mind in reading, etc.; going to some summer resort, and hearing some of the best talent in the world; or, if nothing else seems of more importance, the time saved can be used to go camping or fishing, if one is so inclined; and with me, either or all of these seem to meet my requirements better than to run a section-cleaner, and be to the expense of purchasing the same. As to the inventing of a section-cleaner, I have not so much to say; for in such invention of any thing the mind is improved, and a certain joy comes, which is often greater than any which can be experienced in going fishing, etc. I would not discourage inventive genius in any way, for, when used aright, it is not only a help to the world through the invention, but a help to the world also by making the inventor a greater man or woman, socially and intellectually.

As to the ease of cleaning separators, I am not much interested; for, to my knowledge, I have cleaned mine only *once*, and many of them have been in use for from 20 to 25 years. Some years ago I used wooden separators on a few hives by way of experiment, and, if my memory serves me aright, they were daubed up with propolis to a much greater extent than were the tin ones. But they were not discarded on this account, but because they did not answer their purpose as well, when used in connection with wide frames, as did the tin.

WHEN TO PUT FOUNDATION IN SECTIONS AND FRAMES.

Question.—Would you please let me know through GLEANINGS if it will be just as well to fasten the foundation in the frames and sections during the winter months, while I have plenty of time, as to do the same just before needed, when I am crowded with the summer's work? If I could do so I could have them all ready when the time comes for their use, at a much less cost to me. But I am told that the bees will not accept the foundation as readily where it is put in the frames and sections in winter, as it becomes dry and hard by summer, so the bees can not work on it to advantage. Is this a fact, or only some one's "think so"?

Answer.—During two years I experimented largely in this matter, till I became convinced that all the talk about old foundation being hard and dry, and not worked as readily by the bees, was a fallacy. To be sure, on these cold winter days all foundation does look hard and dry, and any thing but inviting to the bees, or to myself either; but you just wait till some hot day in June or July, and then go up to the attic where it is stored away, or where your frames are filled with it, or sections, may be, then look at it; and if it is not too soft and pliable to handle easily, then your attic and your experience will be different from mine. Why I have alluded to an attic is this: Cold foundation has a whitish, hard appearance, while foundation in a heat of 100 degrees F. has a yellow, oily appearance when it is pliable to handle and inviting to the bees. Now take a piece of the foundation, fresh from the mill, and take it into the cold room, and you will at once say this new is more acceptable to the bees than the old piece you are comparing it with; but take the same new piece into the attic, and hold it by the side of the old, and you will conclude at once that both are alike inviting to the bees. Now take your old, on some cool day in June, when it looks so uninviting, and lower a frame filled with it down into the center of the brood-nest. Leave it five minutes, then go with a piece of that fresh from the mill in your hand; lift the frame, when, presto! the old and the new have become alike again, and the bees have already begun to manipulate it. In other words, when placed in the hive the foundation assumes the same yellow, oily, soft, pliable nature, after a moment or two, that it has in the attic, or when first leaving the mill; and if this is a fact, which I know it to be, will any one tell me why it is not just as acceptable to the bees as the new? Under these conditions no one can tell the new from the old, when the different pieces have been shuffled together, unless either has been marked in some way.

This matter of old foundation not being as good as new is like many another matter which has been started without due consideration being paid to it; and, after being once started, it keeps on its rounds through the papers and on mortal lips, going around and around, as on an endless chain, year after year, decade after decade, till nearly all the world thinks it must be a *fact.* To show that I am not writing one thing while practicing another, I will say that my last two days' employment before to-day, February 14 and 15, has been that of putting foundation in sections and frames, and that said foundation for frames was purchased in 1896, and that for sections in the spring of 1898.

And now I wish to say a word about taking what any one says or writes as an established fact. No man or woman should be *only* an imitator of some one else. Set your *own* mind at work, and it will prove to *your own self* what is right and what is wrong, if you will let your hands obey its teaching by way of doing a little experimenting on a small scale. Don't depend on what Dr. Miller, the Roots, Hutchinson, Dadant, Doolittle, or any one else tells you, unless it is right in line with what you want, and proves as they say under your manipulation. If you want something different from what they do, please tell me what there is to hinder *your own self* trying what you want; and then if it proves, after trial, to be just the thing for *you*, tell the world about it, so Dr. Miller, Doolittle, etc., can take advantage of your experiments, as you have been taking advantage of theirs, all along during the past, and thus shall come a *mutual* benefit to the whole bee-fraternity. Don't be afraid of a little experimenting on *your* part; only take my advice and not go in *too heavy*, for it is needless to sacrifice a *whole* apiary to any single experiment, as many seem prone to think they must, if they experiment at all. Hutchinson would never have been a Hutchinson had he been like a Doolittle, nor a Miller a Miller, nor a Dadant a Dadant. And herein lies one of the *great* blessings of life; for this would have been only a very small world had there been none but Doolittles in it.

HEADS OF GRAIN FROM DIFFERENT FIELDS

WORMS IN BOTTOM-BOARDS; INTRODUCING QUEENS; PLAIN SECTIONS A SUCCESS.

I see by report of the bee-keepers' convention at Omaha that some of the bee-keepers are troubled by worms that get into the bottom-boards of hives, and ask for a remedy. Did you ever try soaking the bottom-boards in lime water?

In introducing queens many persons advise placing the cage with queen therein upon the top of the frames, to let the bees get acquainted with the new queen, while some of the bees eat the sugar-candy plug that is in the cage, and release the queen. By placing the cage under the frames, and between two of them, there will be less danger to the queen, for there will not be so many angry bees to have to deal with; and when the queen comes up she has her escort of bees with her to look after and take care of her.

One of your customers speaks of the wavy condition of the honey in the plain section, and lays it to the fact of some of the slats being more than the regulation width apart. I find that it is very important that the hives should be perfectly level, both sidewise and endwise. The plain section is far ahead of the old beeway section, and I would not return to the plain separator for any money. Every customer to whom I sell honey remarks, "How fine the honey in the plain section does look!" I have heard nothing but praise for my honey wherever I have offered it for sale this winter.

Cuba, Kan., Dec. 23. WM. H. EAGERTY.

A COMMITTEE NOMINATED FOR APICULTURAL TERMS.

Dr. Miller wants a word (see Straw on page 905) to signify that a colony has a good laying queen. Would it not be well if the doctor would coin or suggest a suitable term whenever such want occurs to him? I doubt if any one could do it better. I remember that, some time ago, he told us that the bee-keepers of France had a name for a hive that had cast a swarm, and he wished that we had one in our language. Almost every day in swarming time I feel the want of such name. At my home we use the term "parent;" but I don't altogether like it. Who will suggest a better? Would it not be well to name a committee of three or more to whom the work of fixing upon suitable names or terms as occasion may require could be referred? If you think well of the proposal, I will take the liberty of naming Thos. W. Cowan, editor of the *British Bee Journal*, for one. I know all British bee-keepers will support that nomination. What do you think of the suggestion?

In another Straw, p. 905, Dr. M. tells us of the cold, and the difficulty of getting his bees into the cellar. Now, doctor, why don't you come to Canada and enjoy a better climate? Nov. 16 it was at 45°, and the bees were flying, and I put in some. On the 18th, although the bees were flying, we rushed them in; the time had come, and for a few days they had been flying freely, and I have been glad ever since. S. T. PETTIT.

Belmont, Ont.

[I support the names of Mr. Cowan and Dr. Miller; but let them not wait for a formal election, but go right ahead and coin the needed terms.—ED.]

APICULTURAL NOMENCLATURE.

Dr. Miller sighs for a word like the German word "weiselrichtig," to express the fact that a colony has a "good laying queen." Now, if the word expresses the meaning of the words in quotations it contains as many syllables as the three English words do, and as many letters, less two, and is much more difficult to pronounce. How do you think it would do to call her a "hustler," a "corker," or a "daisy"? But perhaps friend Taylor, of the *Review*, would object to such expressions as being contorted words.

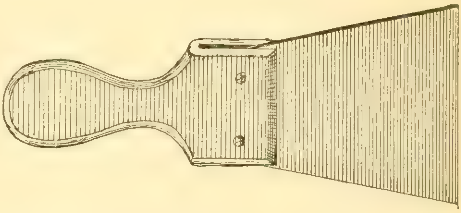
I'm with you in the matter of boiling foul-broody honey. Mercy! Boil two hours, and yet frisky! I could cook a crow in that time.

Hospital, Ill. W. M. WHITNEY.

[We did not understand that Dr. Miller advised the use of the German word itself, but another one as succinct in meaning as that. It would be difficult, probably, to find an English word that would express so much in so short a space without resorting to an arbitrary expression or mark, such as O. K., meaning that the O. K. (Old Kween) is Oll Korrect—in other words, that the colony is properly mothered.—"W. P."]

HANDY TOOL FOR THE APIARY.

In GLEANINGS for May 15, page 400, you write about a tool for separating supers, etc. I send you a duplicate of a tool I have used for years, and found to fill the bill entirely. It is handy to scrape wax and propolis from any part of a hive, using it like a shovel—shoving from you. It is handy for separating frames, and taking off the cover or a super. For me it is strong enough to loosen and partly raise an eight-frame extracting-super with 40 pounds of honey. The blade being thin and wide it can easily be pushed between the super and hive, and it will not make a mark on either of them. It will also serve as a paddle to strike down an irritating bee when it becomes necessary to do so. But the proof of the tool's value will be found in trying it.



J. F. EGGERS.

Grand Island, Neb., July 11.

PLAIN SECTIONS AND OLD-STYLE IN THE SAME SUPER.

I tried a little experiment last fall. I took one Ideal super, and put in half with Ideal sections and fences; in the other half I put the 1⅞ sections and slotted separators. Both kinds of sections were partly drawn comb that had been extracted from. The case, when taken off, contained 15 well-filled Ideal sections; 5 of the 12 1⅞ sections were filled; the other 7 were from two-thirds drawn to nothing. So much in favor of the Ideal. I recommend the Ideal to every new bee-keeper, and old ones too, as the best-looking, easiest-cleaned, and best-packing section in use.

THAD. H. KEELER.

South Salem, N. Y., Jan. 14.

CENTRAL CALIFORNIA AS A BEE COUNTRY.

This is not an advertisement, and there is no more room for the bee-keeper who is seeking location; but Central California is about as favored a locality for the honey-producer as there is in the State. We always get some surplus, and at times more.

Hanford is our largest city, and is the business center of the Central California Bee-keepers' Association, of which there are four yearly meetings held each year, with good results. We find that it is an easy matter to produce honey; and it is also quite easy to get rid of it. But the way that the most of the bee-keepers have been disposing of their product has been more profitable for the San Francisco man than for the bee-keeper.

But the organization of the bee-keepers into the association has proved very beneficial to the producer, and the commission man has been compelled to share at least with us.

Our honey-producing territory is small in this vicinity; and if we get 20 cars of honey to the season we do quite well; and in a dry year like the one just past we fall short of that number, and get from 12 to 15 cars.

Our range consists principally of alfalfa; but there are many other plants that yield well in their season. The bee (or Spanish) clover is getting a good start in this part. The honey is equal to that of the alfalfa. The goldentop is a good producer of honey, and makes its appearance each wet year. The honey is what I call a bright amber color.

At this writing, Jan. 16, our bees are gathering pollen from alfilaria, and next month we expect a little fruit-blossom honey; so by the first of March they will be in good condition to begin gathering honey to build up for swarms and the alfalfa flow.

The long-looked-for rain has come to a part of the State; but it has not given us much here, yet the clouds hang heavily about. While it was raining elsewhere it was storing up the snow in the high Sierra Nevada Mountains, and that will be of untold value to us next summer, as we here in this part depend on irrigation for the alfalfa, and hence the honey.

The ten-frame hive is universal here, although I have tried the eight and also the twelve. I find that the latter is just the size for the mountains, as there it is often that the honey-flow is over by the first of July, then there is a long spell when there is no honey; and if a small hive is used, the stores will not be sufficient to run them through until another spring. But here in the valley we have no fear of such, and the ten-frame is large enough, while we think that the eight is too small for a good brood-chamber. F. E. BROWN.

Hanford, Cal., Jan. 16.

OUTLOOK FOR CROPS.

This year promises a better crop than 1898. While a few localities in the San Joaquin Valley enjoyed a splendid honey-flow, several producers clearing about $2000 each, perhaps over that amount, it is an open secret that the average was very poor. Regardless of the dry-year prophets, we are having a warm winter with considerable rain lately—as much as 25 to 75 tons of water falling in a day on an acre of land. Grain is mostly in, and plowing is the order of the day. Nearly all plows have seeder and harrow attached.

GLUCOSE.

The U. S. B. K. Union could accomplish few things of more importance than ruling glucose syrup compounds out of the market, if my judgment is worth any thing. There is a vast amount of such syrup sold on this coast. They compete with extracted honey very directly, and glucose hurts our business just as severely when sold as syrup as when called honey I don't object to running my bees in competition against honest syrup, but they are unable to make much headway against the common adulterated stuff.

THE DOOLITTLE HIVE.

This is not admired so much as formerly by Mr. Doolittle in comparison with other hives, it seems. A nine-years' study of hives convinces me that a ten-frame L. hive will give better results with his management than the hive he uses. Doolittle's management is not possible in a large business. He coaxes uniformly good results where the range admits of it, as his does. The man with several hundred colonies in several locations must have what I call a "let-alone hive," such as the Dadant or the ten-frame L., when run to extracted honey, to be as much as three stories high.

The Heddon is a "coaxing" hive. The various manipulations necessary to achieve the greatest success can be done "with a motion," Mr. Heddon says. However, the "motion" may be seriously needed when you are several miles away at another apiary. To have a splendid location, and keep enough bees in one location to make it a fair business, no other hive would suit me so well. It is a difficult hive to make properly. As nearly all apiarists are trained to Langstroth management it is quite an undertaking to train a hand to the Heddon hive, especially when he shows his disgust at the start by pointing at the hives and saying, "Them things!" To me the question is still open, "Will it not pay to use a let-alone hive and do all the judicious coaxing you have time to?"

IMPORTING QUEENS.

Being convinced of the superiority of the ordinary Italians over mongrels (improperly called hybrids by many), last year I concluded to import some queens. Of six queens started from Italy, four died before reaching me; lost one in introducing; the other one, and almost all the bees in the hive, absconded several weeks after she was introduced. Lately a friend told me that daughters of imported queens frequently abscond with their families. My experience of last year has convinced me that it is cheaper to send to the Eastern States and buy of importers than to send to Italy direct from California. Twenty days on one trip is very trying on both queen and retinue. W. A. GILSTRAP.

Grayson, Cal., Jan. 11.

BEGINNERS' QUESTION-BOX

BY E. R. ROOT

J. M. H., Ohio.—Paraffine can not be mixed with beeswax in any proportion to make a foundation that will answer in the hive. Nothing but pure beeswax can be used in the hive. Even a slight mixture of paraffine will cause combs to melt down.

J. N. P., Colo.—Notching a rabbet at intervals to regulate spacing the frames is a very old idea. It has been used by a good many different ones; but all, so far as I know, with but one exception, have discarded it. You can best see the objection by fitting up a sample hive and trying it.

F. J. C., Ida.—Several years ago we sold what we called our metal-corner frames. They had knife-edge bearings, and carried out just the idea that you show. We finally abandoned them entirely for the wood projection, as the metal edge was liable to get bent, cut the fingers, and, worse, allow the frames to slip around too easily.

J. H. J., Pa.—You can use perforated zinc between the upper and lower stories of a colony for extracted; but if I were doing it I would not use it. There is a certain advantage in letting a queen have the range of both stories, particularly in the matter of keeping down swarming. If I used perforated zinc at all I would put it on top of the second story; then add a third one for extracting purposes only.

A. F. R., Ohio.—You would be pleased with the late edition of our A B C of Bee Culture. The present one contains over 400 pages, and three times as many illustrations as the old book. In answer to your question as to what I understand by brood-chamber, I would state that, technically, it means that part of the hive in which only brood is reared. When we speak of supers we mean that portion of the hive above the brood-chamber, and which is used for the storage of comb or extracted honey. The glossary of our A B C of Bee Culture will give you very full information on all of these different apicultural terms.

F. M. C., Cal.—In regard to a special breeding-queen, I think I know what you want, but fear we may not be able to select such a queen for you until along in the middle of the summer, and then select her from a number of others of the very best queens. This might make her worth something like $25. I hardly think any queen is worth that much money. My advice would be to buy four or five good breeders, paying for them anywhere from $5 to $10. Breed from all the queens, and you will thereby get a composite stock that will be better than if you breed from one queen only. Of course, these $10 queens should come from different breeders. This will avoid in-and-in breeding.

J. A. B., W. Va.—As to soaking honey-combs in carbolic-acid solution to kill foul-brood germs, I do not know that any one has ever proposed the plan. But I feel certain it would be very risky to rely on this disinfectant. I do not believe that carbolic-acid solution in the proportion of one to five hundred, as recommended by Cheshire, is of any use at all. In the scientific tests we made a few years ago, we placed living germs in such solutions. They were then put in pure-culture tubes. After a day or so new growth developed, showing that they had not been killed. I would as soon think that a good soaking in soap and clean water would kill foul brood as soaking in the carbolic-acid solution. If your experiment proved to be successful, it was the process of *cleansing* and not any supposed disinfecting properties of the acid.

G. W. C., N. Y.—You do not specify just how near the highway the proposed location of the apiary is. Ordinarily speaking, I would not have them nearer than fifty yards; but if you do, a high board fence between the bees and the road would enable you to keep them within ten feet. The fence ought to be about eight feet high. This would compel the bees to fly high enough to avoid passersby. I would also get rid of all black and hybrid stock, and keep only gentle Italians. I would also make it a point to see that there is no robbing allowed. Honey should be taken off, or the most of it, before the robbing season commences. Referring again to the matter of a high board fence, I meant to state that it will be worth all it costs as a protection during spring and winter—especially so if the fence should happen to face the prevailing winds.

N. P. A., N. D.—I can not say why honey candies earlier some years than others. In a general way, cold weather is liable to cause liquid honey to granulate. Some seasons one kind of honey will granulate earlier than usual. This may be caused by the fact that the honey is not as thoroughly ripened by the bees. Generally speaking, good thick extracted honey, brought to a temperature of 180, and then sealed while hot, will remain liquid for a considerable length of time, provided, however, that it is kept stored in a room near living temperature. We have had samples keep for us this way in bottles three or four years. While some honey might keep liquid this way, others would candy perhaps in six months. The honey that I refer to was a fine quality of extracted clover.

Some prefer section-holders and some T supers. We prefer section-holders ourselves. The section-holder bottoms we now make are a little heavier, and we do not think they will sag so as to make any trouble.

Regarding Hoffman frames, I will say that there are localities in which propolis renders them a little objectionable, and yours may be one of them. We therefore recommend, instead, our staple-spaced thick-top frames, for particulars of which see catalog we are sending you. These frames have given satisfaction wherever they have been used, and in your locality they would be more easily handled than the Hoffman.

EDITORIAL BY E.R. ROOT

THE subscription clerk says the new names are rolling in at a rapid rate. For all this we are grateful. The larger our list, the better, of course, we can make our journal.

THE average bee-journal of the day contains several kinds of matter. One will be a department of short items; another, general articles; another, extracts from letters; another, editorials; and still another, reports of conventions; but in this issue we introduce a rather novel feature, and that is an interview, or what might be called an unconventional convention of two people.

THE department called "Afterthought," by "Cogitator," now running monthly in the *American Bee Journal*, is a good one, and is a real addition to the Old Reliable. But methinks I know who it is that cogitates—yes, I will bet my old hat against York's that I can name the man, simply by the earmarks of his bright breezy paragraphs. Bet? "You bet" I do when I am sure of winning, and have a good man to bet with.

QUITE a number are asking at this time of year what to do with colonies that are afflicted with dysentery. I do not know any thing to do with them but to let them die. Confining the cluster to fewer frames or uniting two or three of them together may help some. But somehow they disappear all the same whether in one or several clusters. The only cure is *continued* warm weather. In this latitude we shall not have settled warm weather for a month yet.

SHIPPING-CASES IMPROPERLY CONSTRUCTED.

A LETTER from one of our leading commission houses urges upon bee keepers the great importance of having shipping-cases with no-drip strips in the bottom. It further urges that the covers should *not* be let down in *between* the sides or ends of the cases, but they should be as long as and wide as the case sitting down on the edges flat, held in position simply by nails. When the cover is dropped into a recess in the case, it is often necessary to split the case to pieces to get at the goods.

So far as I know, the leading manufacturers of bee-keepers' supplies are making the shipping-cases as they should be; that is, they have "no-drip cleats," and the cover lies flat on the case. It is those who attempt to make their own cases, trying to "improve" them, that send out cases of the kind condemned.

THE EVIDENT SIGNS OF THE GROWTH OF THE BEE-KEEPING INDUSTRY.

REFERENCE is made in the *Bee-keepers' Review* to the fact of Bro. York's having printed 15,000 copies of one edition of the *American Bee Journal*, and both Mr. York and Mr. Hutchinson seem to be of the opinion that this is the largest edition of any bee-paper ever published. I have just been looking back over our record, and find we printed single editions of 15,000 of GLEANINGS in April, September, and December, 1895, and later on (I can't find just the record for it) we published an edition of 30,000. This present issue happens to be another 15,000. As the call for sample copies has become large we have been obliged to make this extra number in order to supply the demand. I do not say this with any feeling of "go you one bigger," but refer to it because it may be interesting to bee-keepers to know that our industry calls for such large editions of the different bee-papers. The subscription-list of GLEANINGS is growing rapidly. I understand that the lists of the *Review* and the *Amer. Bee Journal* are also growing. All of this betokens the growth of the industry, and general prosperity among bee-keepers. Another fact is interesting: Two or three years ago there were only three or four supply factories, and now there must be a dozen. All, or nearly all, are working on full time, and several over time, and this in spite of the fact that honey is coming down in price, and glucose has been pushing its way into prominence at a fearful rate. It only goes to show that honey is becoming more and more a staple. Ten years ago it was accounted a luxury, and was put on the table when the "folks had company." But now, if it is used at all, it is on the table every day, and is eaten just like any other sauce.

A HONEY-LEAFLET IN THE FORM OF A HONEY-LABEL.

ONE of our subscribers, referring to the fact that the honey-leaflet did not seem to increase his sales, went around among his customers and inquired whether they read the leaflet or not. Those who did look at it at all said they did not place much confidence in its recipes, as they thought it was a sort of "patent-medicine affair." Why did they think so? simply because there was a doctor's name attached to it! That is a good joke on Dr. Miller—to think of his being styled a patent-medicine crank!

When the question of the honey-leaflet came up in the first place, it was my purpose to prepare the matter myself; but there was Dr. Miller, who, I thought, knew more about the general subject-matter than I; and that he, being a *doctor*, you know, his *ipse dixit* would have some weight.

But this same correspondent hints at an idea that may be worthy of adoption; and that is, putting the general facts about honey on the honey-label, and then, if there is room, put on the honey recipes. Such a label would necessarily have to be large; but in the case of nearly all extracted-honey packages, especially if of tin, the label should go clear around the package, and lap. This would give room enough for the general matter.

WASTED AMMUNITION.

Another subscriber, a lady, writes that it is useless to throw the leaflets on porches, or throw them broadcast anywhere. Wasted ammunition really does more harm than good. She is very careful about the distribution of her leaflets. If she hands one out she draws attention to the value of the honey recipes, and to the interesting matter regarding honey and its production. She also mails a leaflet to all her customers, at the same time adding a word to the effect that she has the right kind of honey—the very kind that is described in the leaflet itself.

WHAT'S THE MATTER WITH HOLTERMANN? PREJUDICE OR CARELESSNESS—WHICH?

In the December issue of the *Canadian Bee Journal* appeared a general criticism of plain sections. Referring to a statement in our catalog, that the new sections, when filled with honey, would bring a higher price because they are better filled out, Mr. Holtermann said:

> If this can be done, how is it that at Toronto, London, and Ottawa exhibitions the plain sections did not distinguish themselves by capturing the prizes on comb honey? The comb honey in the plain section was shown at Toronto, but secured nothing.

Our readers will remember that I referred to this in our issue for December 15th last. While I did not deny his statement I was surprised, because plain sections had held their own, and more than that, at other shows. Soon after GLEANINGS was out I received the following letter having reference to Mr. Holtermann's statement above:

> I might say here that I gave the no-beeway sections, 4¼x4¼, a trial this season, and I am well pleased with them. I used about 1200 of them alongside of the open-end or slotted section, 4¼x4¼x1⅝, with plain separators. This winter I am changing all of my supers to no beeway. I find that I can get from ½ to 1 cent more for no-beeway in the Toronto and Kingston markets. I sent 12 sections to Mr. Hill, one of the officials of the Toronto exhibit, and paid my footing and express both ways. I called unexpectedly at Toronto the last week of the fair, and my honey was still in Manager Hill's office, not opened. I opened it, and showed it to Mr. Holtermann. That is the no-beeway that did not take the prize that he has so much to say about in the *Canadian Bee Journal*, and I am positive there were no more, for I looked very closely, and asked two of the honey-exhibitors if there were any, and they said no—that they wished there were Mr. Holtermann is a friend of mine—that is, a business friend—but I like justice in all things.
>
> C. E. TAYLOR.
>
> Harrowsmith, Ont., Can., Dec. 28, 1898.

This letter I referred to Mr. Holtermann for an explanation. After some correspondence it was agreed that he was to make suitable correction in his own journal; but when in his next number he attempted to excuse himself rather than make a full correction, I was surprised. This is what he says:

> In my article on plain sections I did not mean to say that honey in plain sections had been shown at the leading fairs, but that, if it had produced so superior an article, why did it not take some of the prizes at those fairs? Again at Toronto, plain sections were entered and sent to the exhibition. I saw them there, but through an oversight they were not judged. Yet they simply were not in it for best-filled and cleanest sections. Although it would have been better to make this explanation, it did not occur to me to do it, as it did not affect the position as to their merit.

Mr. Holtermann says they "were entered and sent to the exhibition;" that he "saw them there," as if he were *still* trying to convey the impression that they were *on exhibition*, as, forsooth, he "saw them." To this Mr. Taylor says they were in Manager Hill's office when Mr. Holtermann "saw them." Mr. H. says, again, "Through an oversight they were not judged." Not judged? How could they be if they were shut up in the box they came in from the express office in "Manager Hill's office"? And was the "oversight" in not judging or in not opening the box? And even if they had been judged, he says they "were not in it." Mr. R. F. H.'s prejudice is so apparent in this case, that, if he had been judge, they would not have "been in it," that's sure.

Here is what one of our correspondents, referring to this same attempt at explanation, says:

> He doesn't admit that he said any thing unfair, when he before said practically what was both unfair and untrue. He now says plain sections were entered and sent, but not judged. Why doesn't he say they were not exhibited? If he were entirely fair he would have said something like this: "I said in a former number, 'The comb honey in the plain section was shown at Toronto, but secured nothing.' That was incorrect. The truth is that honey in plain sections was *not* shown there, and had no chance to secure recognition, even if it had been twice as good as any shown." Indeed, if we may indulge the hope that Mr. Holtermann is entirely truthful, there is no power that can prevent him from saying so yet, at the earliest opportunity. And what explanation is there for their being where they were privately seen (if I have the right idea) by Holtermann and others, and Holtermann, in the interest of fairness, didn't see that they *were* exhibited?

I can not think that Mr. Holtermann meant to deliberately misrepresent or to act unfairly; but prejudice or carelessness, seemingly, has so warped his memory that he failed to set forth the facts as they were—that is, if Mr. Taylor's version is correct. I have letters from others, stating that there were no plain sections on exhibition at Toronto. We are all liable to unconscious prejudice or mistakes; but when they are once pointed out, one does not lessen his self-respect by "acknowledging the corn."

THE NATIONAL BEE-KEEPERS' UNION.

A REPORT has been sent to the members, showing the result of the last election. Only 76 votes were cast in all. Out of this number General Manager Newman received 71; and R. L. Taylor, for President, 44; but both Mr. Taylor and Prof. A. J. Cook "positively decline to accept any office" in the Union; and General Manager Newman says: "I feel that, in justice to myself, this must be the last time that I can accept the office. . . I would cheerfully give counsel at any time, or accept a position on the Advisory Board, or take the office of President." When two of the main props of the organization decline to accept office again, and when its General Manager himself says that this must be the last time that he can accept the office, it would seem, in my humble judgment, that now is *the* time to marry the weaker to the stronger, the United States Bee-keepers' Union. Thomas G. Newman, with his long experience, would be a valuable member of the Board of Directors; and now that the new Union has 465 members, and is in a flourishing condition, it would seem as if this were the very thing to do. I make this suggestion with no feeling of exultation over the waning strength of the old Union, and of its probable demise, but on the score of economy and expediency.

That old war-horse, who has truly rendered such valiant service in the old Union, should certainly be an officer in the new organization. For fifteen years he has been at the head of the old Union, being unanimously elected each year. As he is growing in years it is not a wonder that he should feel that he has done his duty.

But amalgamation can not be effected by "mere talk" on the part of bee-journals. Those who are officers of one organization are, in part, officers of the other. If the Advisory Board of the National and the Executive Board of the U. S. B. K. U. recommend amalgamation, then the question can be voted on at the following elections of each Union.

It seems to me simple, easy, and the only thing to do.

FOUL-BROODY HONEY; HOW LONG SHOULD IT BE BOILED TO RENDER IT STERILIZED?

SOME little time ago, as our readers will remember, Dr. Miller criticised my statement to the effect that only a few minutes' boiling would be necessary to kill the germs of foul brood in honey. In this opinion I was backed by R. L. Taylor, who has had a very large experience with foul brood. But Dr. Miller, nothing daunted, finally confronted me with the names of several scientists; among others, that of Dr. W. R. Howard, of Fort Worth, Texas; Bacteriologist J. J. McKenzie, of Ontario, Canada, and a Frenchman by the name of Genonceaux, whose experiments went to show conclusively, in his opinion, that boiling honey even 45 minutes did not necessarily kill the spores of *Bacillus alvei*. He further stated that they found that in some instances it required even two and a half hours to render honey tainted with the microbes of foul brood innoxious. This staggered me somewhat, but I was not then willing to give up, because I insisted that practice was at variance with science; that I never knew of a case where honey from a badly affected colony, boiled only a few minutes, ever gave rise to the disease in a healthy colony fed with it. Then I offered this challenge: That, *if* there was *just one instance* where a practical man found that a few minutes' boiling was insufficient to kill the germs, I would give up. This challenge was accepted by J. A. Buchanan, a man whom I regard as careful and conscientious. He placed before me (see GLEANINGS, page 48) a certain array of facts from his own experience that convinced me that the scientists were right. Later on, a letter from another bee-keeper confirmed the statement made by Mr. Buchanan, but this letter has been mislaid, and I have not been able to find it, so I can not present it to our readers.

Critic Taylor, of the *Bee-keepers' Review*, after considering all of this, characterizes my change of front as "hasty and ill considered;" that "the evidence" of my own "senses" is "a thousand times better than that drawn from some case of which nothing is known concerning the care or skill used." He calls attention to the fact that scientists are not infallible, and in evidence of this he refers to the discussion of years ago on the question of spontaneous generation—a theory that has since been thoroughly exploded; and, moreover, he is surprised that I should so hastily recant my former opinion "without raising any question of skill or care on the evidence of this single case."

Of course, Mr. Taylor did not know of this other letter, not published; and my own excuse for a change of opinion is that it is safer to err on the side that a few minutes' boiling is insufficient; that, if there was any possible doubt (and I certainly think there is good ground for it), we should take that side which we *know* to be safe, and I therefore felt impelled to recommend a boiling of at least three hours.

I have just reread the article by J. A. Buchanan, of whose "skill and care" in making the experiments under consideration Mr. Taylor has some doubt. To me there is every evidence of precaution on his part. If he were a bee-keeper comparatively unknown we might accept his statements with a grain of salt. But he is an old bee-keeper of considerable prominence, and one whose opinions I have learned to respect. But Mr. Buchanan is backed by that one whose letter I have mislaid, and by the three scientists. And it is worthy of note that these three men of science live in three different countries, one of whom, at least, was, I believe, entirely ignorant of the work of the others. As their scientific experiments are backed by the actual experience of one (and possibly two) practical bee-keepers I believe I was wholly justified in recanting in the wholesale manner I did.

Later.—Since writing the foregoing I have found two articles that I think explain *why* boiling in one case 10 minutes may be sufficient, and why in another 40 minutes may not be enough. I'll give them next time.

REPORTS FAVORABLE IN REGARD TO WINTERING.

RIGHT after our last issue was out, the one in which I expressed fears that the prevailing low temperature throughout the country would be the means of killing half the bees, warm weather came on—so warm, indeed, that the bees in our locality had nice cleansing flights. Up to date we find we have lost only three colonies, out of a total of 252 colonies. The rest are in ordinarily good condition. But reports from all portions of the country are uniformly favorable; and the only reason I can assign why the bees did not die off worse is because a change of weather came *just in time* to give the bees a chance to turn over—i. e., seek a new position on the combs. The cold spell, as severe as it was, did not continue long enough to do much damage.

IN our last issue we promised to give in this number a letter from Mr. Uglow relative to getting *Apis dorsata* from the Philippines; but our space is so crowded that we shall have to leave said article over till March 15.

OUR HOMES,

BY A. I. ROOT.

Thou shalt not avenge, nor bear any grudge against the children of thy people, but thou shalt love thy neighbor as thyself.—LEV. 19 : 18.

If you kick a bee-hive the inmates all together sally out to protect their home; and, as a general rule, if you injure any single inmate of that hive the rest behave themselves exactly as if they individually had been bruised or ill treated. If anybody should hit you a blow on your foot you would be as ready to resent it as if that person struck your hand or even your head. In fact, it does not matter particularly where he hits, so it is some part of your body. You resent and resist damage to any member — toe, finger, tooth, or eye. Well, now, the bees behave a good deal as if each individual bee was in a like manner a part of every other individual bee in the hive. And that is right. We admire that very trait. In fact, a very high grade of patriotism prompts every citizen of the United States to rush forward when the life and liberty of any other citizen is threatened. If an American in foreign lands is misused, every American here at home resents the indignity as if he himself had been insulted or injured. Some foreign nations have found this out to their cost. This trait may not be particularly American, but I think it is largely so. Now, if we could expand this so as to cover all humanity, then we should come into that broad open field where the Savior stood while he was here on earth. He loved his fellow-men, *all* of them. We are not told that he ever made any exception, unless it was that he gave his life more for the poor and downtrodden than for the rich and the noble. When we love our fellow-men as in the text above, then we are Godlike. Of course, it comes natural for us to feel a little more responsible for the members of our own family — for the children of our own home; and as a band of bee-keepers I think it is right and pleasing in God's sight to see us unite together to protect our common interests. I think God is pleased to have us exhibit the little trait that I spoke of in the outset. If any bee-keeper is wronged, all other bee-keepers ought to be interested, and ready to resent that wrong.

In our issue for Nov. 15 I told you how bee-keepers, or some of them, were being robbed; and the editor of the *American Bee-keeper*, in a recent issue, offers to be one of a hundred who will give one dollar or five dollars to prosecute the men who managed to get Edward Smith's honey, and who have as yet refused to pay a copper for it. I am always glad to see that spirit, for it is the right one. The Bible says the way of the transgressor is hard; and when we assist in making it hard, we are helping the great God of the universe to carry out his righteous laws. Permit me me to say that these two men—Roe and Robie — have never yet been heard from in any shape or manner. We have exhausted all of our resources, and can not get them to answer. In a recent issue of the *Progressive Bee-keeper* this man Robie received quite a favorable write-up; but the person who did so, of course did not know him, and the editor of that journal had not noticed our warning under the title of "Robbing Bee-keepers." When I called friend Leahy's attention to the matter, he expressed a readiness to do all in his power to have such matters righted; and I think there is not a question but all the bee-journals will heartily co-operate in holding up to scorn (if we can not do any thing more) all those who are robbing bee-keepers by taking their honey and giving nothing in return.

Now, some of the friends may protest and say that friend Robie has probably had bad luck, and can not pay the account. If so, why doesn't he say so, and ask for a little more time? Or if he is so exceedingly unfortuate that there is no prospect that he will ever be able to pay, let him say that he asks to be forgiven for the wrong that he has done. But he is the editor of an agricultural paper; and if he goes on unrebuked he may damage a good many more honest hard-working people —perhaps unfortunate people like himself.

And now this whole matter of collecting accounts comes up before us. What is the right and Christianlike way of proceeding? To cut it short, "what would Jesus do?" If a man is absolutely unable to make even a small payment on what he owes, of course no Christian man or even a good and fair man, would distress him *needlessly*. But if this person proposes (or does without proposing) to continue to get things from others whenever he can do so without being arrested, then he should be stopped by warning people against him or by making him trouble.

There is another phase of this matter that I fear is often overlooked. A little incident will make it plain. A certain kind of coal was going off rapidly from one of our coal-dealers. It went off in the night, and they tracked it and found it in a certain man's shed. No other dealer in town had that kind of coal. The man who had been stealing it nights owned up; but instead of feeling sorry he said he would do the same thing again before he would freeze — that is, if nobody would furnish him work. Well, some might think this sounds very well, and that it is a pretty fair excuse. But the coal-dealer was also a poor man, comparatively. During the severe weather he had sold coal on credit, and to people who perhaps could not pay, until he was in danger of being something like the man who claimed that it was right for him to steal so long as nobody would give him work.

There has been a good deal said about the sins of *rich* people. I want to speak of just one of the sins of poor people. This man laid the blame on the coal-dealer because he could not get work, and tried to make it appear that the *coal-dealer* alone should furnish his coal. Now, no one thinks of claiming for a minute that a man should starve or freeze without doing something. In this case our town would have gladly and willingly supplied him with food and fuel, and the burden would have been borne on the shoulders of a great many, which is the right and proper way to relieve suffering. But the trouble is, the man who was not too proud to *steal* was too proud to "go on the town." I know I am getting on to delicate ground; but it surely is not right that one man, and a poor man at that, should support people who say they can not get work. It should be done by the community at large—by his own friends and neighbors. Our county has a large fine farm, with beautiful brick buildings for the accommodation of our county poor. Nobody wants to go there. A poor old lady who depended on a sewing-machine for a living, during the past winter could not get work. At length she suffered from lack of food and fuel. The neighbors, one after another, took care of her; but the final decision was that it would be better for her to go to the infirmary. There she could have plenty to eat, and a nice warm room, and could use her sewing-machine to good advantage in helping the matron, the manager's wife. She declared she would starve or freeze before she would go to the "poorhouse." The manager's wife finally came after her herself, told her she really wanted somebody to help her with a sewing-machine, and agreed to pay her wages. But she would not go, even then. In fact, they were almost obliged to use force. I do not know but most of our readers would say, "Poor woman! I do not blame her a bit." Well, there is certainly no objection in the world to keeping such a person from the infirmary by donations, or, better still, hunting up work for her. But most people will find this a pretty big job, to keep hunting up work for somebody who either can not or will not hunt it up for himself.

During the past winter there have been great numbers of people seeking work. They have offered to work at any price, and at any thing — at least, many of them have. May I be pardoned for just a little divergence just here? In a great many cases where people are out of work, intemperance has had something to do with it. In the first incident I have mentioned, I think intemperance may have had *all* to do with it. In the case of the poor old lady this was, of course, an exception. But right in our town, when so many people were hunting something to do, a man has been getting absolutely *rich* by selling liquor on the sly; and his riches came, too, perhaps, principally from the poor and destitute.

Now, in this land of ours, especially in the prosperous farming and manufacturing localities, no one should suffer from a lack of food or fuel unless it is those who *can* work but absolutely *will not*. It does not hurt my feelings at all to see such people suffer. In my travels through our own and other States it has rejoiced my heart to notice the beautiful buildings and grounds furnished by the people for the county poor. A little more than a year ago I described the county house and grounds of Belmont Co., Ohio. Well, now, is it not a false pride that prompts any one to say, "I would suffer or steal before I would go to the poorhouse"? If you have some ability, but not very much, why not go and help the manager or his wife? At our county house there are some nice people, and quite able people. Some of them I rejoice to call my particular friends. They assist the manager in looking after those who are more unfortunate. The farm is a nice thrifty one, well taken care of, underdrained, and is growing splendid crops. Since they have put up the new buildings it is a handsome and comfortable place to live. Aside from this, I believe many counties have a plan of letting people stay at home, or with friends, and giving them a little assistance, say during the winter season. Yes, our own infirmary goes so far as to furnish *tobacco* for the comfort of the old people; and when one of the inmates asked if he could have the money instead of the tobacco there was quite a little debate before it was decided that he could draw regularly the value of the tobacco if he would break off and go without it. He came to me one day looking very happy. He had on a pretty fair-looking suit of clothes, and said he had saved his tobacco-money until he had enough to take a visiting-trip off through the country to see his old friends and distant relatives. May God help us to look after the poor and unfortunate in just the way that Jesus would do if he were in our places! May this love, of which I am sure we all have more or less, for our fellow-man, prompt us to let it be general and wide. Perhaps I should say *generous and wide*. Let it not stop at age, sex, or color, nor any thing else. Let us love all our neighbors as we love ourselves, with a consistent and rational love. We have all decided—or if we have not we will some time—that giving money outright is not a very good way. When we discover that some family or person is suffering for fuel or food, supply the deficiency at once, no matter if it takes all the spare change you have. Then state the case to your friends and neighbors; tell them what you have done, and let a large number bear the burden. Then hunt up employment for them. Of course they will, at least as a general rule, prefer employment to money given outright. I suppose every town has an organization that makes it its business to look after things of this sort. The King's Daughters are doing a grand work; but I am really afraid the King's *Sons* are lacking a little.

But let us now consider a little further this matter of robbing bee-keepers. I think that, if the bee-journals act in concert, with the help of their subscribers, they can largely do away with this matter of swindling bee-keepers out of their honey; at least, we can look after persons who are permanently located. Snide commission men who manage to get hold of honey and other products, and sell them and "light out," can not very well be hunted up. But we should all be very careful about trusting anybody who has not a record in the past, and is not quoted by the commercial agencies. I have been studying a good deal as to what should be done with Mr. Robie. He had by far the larger lot of the two. What should we as Christians demand of such a man? Well, I think it will do him good, and do us good, to insist upon a reply of some sort. The example of such men is bad. If he has some arrangement in mind whereby he expects to pay friend Smith, let him tell us of that arrangement, and we will give it the same publicity we have done in showing him up; and when he pays the account, or any part of it, we will also publicly give him credit; and the sooner it transpires that every man who plans to swindle bee-keepers understands that he will be promptly shown up by the bee-journals, the sooner will such swindlers hesitate before they undertake a thing of this kind. Another thing, we want to do away with all of that stripe of commission men who can not afford a postal card to write to their customers, and tell them what progress they make in selling their honey. The commission man or dealer who solicits honey, and then waits a long while before he says any thing after he has received it, should also be shown up. Of course, every person should be given every opportunity in the world to defend himself before giving him publicity. There is no nobler work in this world for any one to do than to *discourage* selfishness and selfish greed in every way in his power. Let us use mild measures first. Let us exhort and entreat. But when neither of these avails, then let us use *law* as well as gospel.

There is another point I wish to take up before closing. Average humanity seems to have a dislike to writing letters or even postal cards. Oh how many troubles would have been saved if somebody had just used a postal card and a pencil, and told us long ago what he finally told at great length after we had sent his account for collection, just because we could not get any scrap of information from him otherwise!

Most of our readers know that GLEANINGS is continued without orders until we are told to stop it. We do this because so much the larger part of our readers prefer to have us do so. Just think of it! between 200 and 300 have had GLEANINGS right along for 25 years. Should we stop sending our journal to one of these friends without orders to do so, there would be a protest in a hurry. Some will say, "What did you stop my journal for?" another, "I would thank you, sir, to keep my journal going until you have orders to stop it. You have money to my credit on your ledgers, and you *know* it." It happens, however, that the subscription clerk does *not* "know it," unless the person tells her that such is the case. Well, we have again and again decided that it was far less trouble all around to keep it going. One good reason is, it is such expensive business to take out the address that is correctly set up in type, and then put it back again without making any mistake when the person renews as soon as he finds his journal stopped. Besides, we give everybody four plain and distinct notices before we send in his account to the collection agency. If you refuse to take the journal from the office, postmasters are expected to inform us of the fact. Unfortunately, however, very few of them do this. A great many bee-keepers move away without telling us of the fact, and let GLEANINGS go to the old postoffice sometimes two or three years. A good many times somebody gets hold of them who values them enough to pay us—that is, after we get hold of the state of affairs. But what I wanted to speak of particularly is this fact: The collection agency seems to have a plan for *making* people talk; and, oh what pitiful letters we do get! I have had several this spring where it would almost make one shed tears to read them. The writer will often wind up by saying something like this:

"Now, I can not for a moment believe that my old friend A. I. Root, who writes the Home Papers, ever authorized any such proceedings as this."

Perhaps the writer tells of poor honey seasons, of floods or drouth; of sickness and death in the family; but he did not tell us a word about it until he and the dear wife, and perhaps the children also, were greatly pained and distressed by a harsh businesslike letter, because nobody had looked after GLEANINGS. A postal card, saying, "Please keep GLEANINGS going, if you can afford to; we have had sickness and lots of trouble; but we want GLEANINGS for the encouragement it gives; and if you can wait a while we will surely make it right," would make all clear. In such a case the subscription clerk notes the circumstances, often referring to myself, for I keep a careful oversight over the whole subscription-list; and if misfortunes continue to come, so it is going to distress the poor friends, or so the party absolutely can *not* pay, we drop it without any hard feelings. Over and over again I have been obliged to say something like this: "Rest assured, dear friend, that The A. I. Root Co. never asks for a copper from any one for something he did not order and did not want." A great many times I leave the matter in this way: After we have got hold of the person, and succeeded in making him talk, I close the correspondence by saying: "And now, my good friend, if GLEANINGS has been worth something to you or to your family, during the past two or three years that it has been sent without orders, we leave it entirely to you to say how much that something is, or whether it is any thing at all."

A great many parties give as an excuse for *continuing* to neglect writing, that they felt ashamed to say any thing until they had some money, and hence did not say any thing. Now, please do not do that. If you can not do any better, tell one of the schoolchildren to write a card to Uncle Amos, telling him they want GLEANINGS kept going, and that they will pay after a while. I like to get letters and postal cards from the children. It indicates that they are helping papa and mamma. Why, I know lots of energetic go ahead bee-keepers who let the children do almost all the writing. They can just as well write business letters as to make pot-hooks in school that do not mean any thing. Perhaps some of the children will think it is a long time since Uncle Amos went to school. And, by the way, it pleases me to see how the children get the hang of the telephones. When Howard and Leland, one or both, had the grip, they used to talk back and forth through the telephone, and they were learning to do business. Now, then, dear fathers and mothers, when you get your children to doing business with postal cards you are helping them a great lot in the way of a practical education, and you are helping the subscription clerk here at the Home of the Honey-bees a great lot also. By the way, let me say to you that, since Blue Eyes is married, her younger sister, Miss Carrie Belle Root, has taken charge of the list, and she is very *anxious* to have every one keep on taking GLEANINGS, if it is really proving helpful.

Just one thing more: You know we have been giving exceedingly liberal premiums during the past few months; in fact, I have almost been scolding the boys because they were so reckless in making offers to people who subscribe. Now, a good many of our old friends do not care for premiums. They just want GLEANINGS itself. Sometimes they have means so they would just as soon pay in advance as not; and this method saves all misunderstandings and unpleasant tangles. In order to assist this class of people we will send GLEANINGS two years for $1.50; three years for $2.00; five years for $3.00. Sometimes several in the same neighborhood club together and take advantage of the above reduced rates. Now, dear friends, remember that Carrie and I have charge of the subscription-list; and on our part we are going to try hard and not let any selfishness creep in. We are going to try to let our readers know that we believe in my favorite little text, "Thou shalt love thy neighbor as thyself."

HIGH PRESSURE GARDENING BY A. I. ROOT.

HOW TO SUPPORT A FAMILY ON A QUARTER OF AN ACRE OF GROUND.

Our readers will perhaps remember that this is the title of one department of our tomato-book. Of course, this quarter of an acre must be for gardening under glass. Well, when you first make your beds, fill them with rich soil and have the side boards all straight and plumb, sound wood, every thing will work nicely. But you will notice, after running this quarter-acre farm one or more winters, and especially after zero freezes, that the boards will be getting out of shape through the influence of frost and wet. If the ground is higher inside of the beds than the paths where you walk in, the freezing of the ground while the beds are not in use tends to spread the boards or plank that support the sashes. And, by the way, our beds were nearly all made of heavy inch hemlock boards. They ought to be 1½, 1¾, or, better still, 2 inch plank; then when supported by the plan given on page 112 of the tomato-book they will be tolerably substantial. Notwithstanding, after the freezing and thawing during the winter the boards will spread more or less. Our remedy so far has been to drive down oak stakes about 2 inches square, the stakes, of course, being driven in line by a cord stretched from one end of the bed to the other; then nail the board securely to said stakes, and saw them off low enough so they will not hold the sash up and let in the frost. But I do not like the stakes; first, because they rot off; then the next heavy frost is liable to pull them out and get things out of shape again.

This spring we are adopting another plan with our old and rickety beds. If your sash are 6 feet long, you want to cut up some strips of dressed pine, say 1x3 inches, just long enough to go across the bed, slipping down between the boards. With 6-feet sash these strips will need to be about 3 inches less than 6 feet in length. Now get out some more similar strips, only narrower and longer—say 1¼ inches wide by six feet long. Nail these narrow strips right in the center of the wider ones, projecting equally beyond each end of the wider ones. Now, if you lay this across the bed the narrow strip will catch on the top while the wide one goes down between the side boards. When the sash are in place they lie on top of the wide strip and come up against the narrow one, making a close joint to keep out frost. Now, this cross-piece, when pushed in place, will hold the side boards *apart* wherever they get too near together; but in order to bring them closer, if they get too far *apart* we need some pieces of heavy galvanized strap iron, bent in the shape of a letter L. The long part of the L is to be put between the two strips of wood before they are nailed together. To start with, two holes should be drilled in this long part for nails to go through and clinch. The short part of the L is to reach down over the outside of the side-boards to the bed. We have just had a lot of these cross-bars made, and painted red. We have them painted red so the boys can see them more readily when they want one. Now, in handling sash in any bed, whenever the sash do not reach, and threaten to drop down and mash the plants in the bed, just go for one of these bars. If you can not bring the sides of the bed up into place by hand, dig away the soil inside a little, and crowd up the refractory board with a crowbar; then crowd down your cross-bar, and put on your sashes. Whenever you are spading up a bed, the crossbar can be easily pulled off; and after the said bars have been kept in place until the ground is well settled and warm, the sides of the bed will probably stay till winter. Anybody who has been vexed and annoyed by having sashes drop down on the plants will readily appreciate this invention.

These crossbars serve another excellent purpose. Later in the season, when the frosts are not so severe, cotton cloth answers very well in place of glass. See description for the way it is used, in the first part of the tomato-book. By all means have your cotton cloth so it can be rolled up. Cotton cloth stretched on frames, I would not have around. The very fact that the wind blows them about so, is objection enough. Well, you can use the cloth rolled up over the same beds where you use glass earlier in the season; but you have got to have rafters across the bed to keep the cloth from sagging down on the plants. These are all the more needed here in the North when you are liable to have quite a fall of snow on the cloth. If the cloth comes flat down on the plants it is but little better than nothing at all. Well, these crossbars I have described are just the thing to hold the cloth from sagging down when the weather is wet, or with the weight of snow on top. With these *movable* rafters you can have them 6, 9, or 12 feet apart according to circumstances. When the cloth is rolled up, if you find the rafters in the way they can be taken off in a second.

Another objection to the cloth covering here in the North is, if they are rolled up wet, or are allowed to become wet after they *are* rolled up, they are very quickly spoiled by rot. I am planning this season to have a suitable covering on the north side of each bed to protect the cloth from wet when it is rolled up. In this way it would last ever so much longer. With most plants there is no need of any cloth covering if the temperature is below freezing, or at any time when it is raining. Whenever it is raining I would rather have plants of almost every description uncovered than not; therefore if you could roll up your cloth covers, and have them in the dry just *before* every rain, it would save your cloth and benefit your plants. If the rain turns to snow I would still let all the hardy stuff remain until the snow commences to be *dry* snow; then roll down your cloth covering.

GROWING STRAWBERRIES IN THE SHADE.

Ever since my visit to Florida, where I saw such beautiful gardens in the shade of the palmetto-trees, I have been studying the matter of partial shade for plants during the intense heat of the summer in our northern localities. Some of the friends may remember that I paid $2.50 for a leaflet containing wonderful secrets of value to farmers. One of the secrets was planting corn and potatoes in alternate rows so the corn would shade the potatoes during the intense heat of the summer. I have often thought I would give this matter a test, but have not yet got around to it. Since then I have had an opportunity of noticing, once or twice, that strawberries seemed to do better where shaded a part of the day than where they were exposed to the full blaze of the noonday sun. In the last *Practical Farmer*, in their symposium from strawberry-growers, I find the following, which you may be sure arrested my attention very strongly:

> I have been growing strawberries for 30 years, and have tried various plans for overcoming difficulties, such as cost, winter-killing, frosts, and drought. I have succeeded in overcoming the first two, and, to quite an extent, the remaining ones. I prefer land, in corn-stubble, plowed as early as possible in spring, and well prepared. Mark rows 4 feet apart by dragging a heavy chain on the land. Vigorous runners like Jessie and Crescent I give four feet in the row; Wilson's Albany and Parker Earle, 3 to 3½ feet. Plant a hill of corn between each strawberry-plant, and cultivate for corn and strawberries too. Strawberries thrive better in the shade of the corn than without it. The corn is gathered, and the stalks left standing where they grew. With the first fall of snow you have your winter cover, and every wind adds to it. I have often had two feet of snow over my strawberry-beds, when 20 rods away the groun dwas bare. I do not disturb the stalks until after I harvest the fruit, as they help to modify the frosts during blossoming time, and in resisting evaporation during fruiting time. The crop of corn largely pays cost of production, and an acre of strawberries ready for the pickers should not cost over $10. No damage from winter-killing, danger of frosts and drought diminished; and when the last fruit is gathered, summer-fallow the field, and it is ready for wheat in September. I am growing strawberries for profit and not for style or pleasure. Wilson's Albany, Jessie, Crescent, Haverland and Beder Wood are my favorites.
>
> Ribble, Mich. O. P. CHAPIN.

Now, friends, has any one of you tested either potatoes or strawberries shaded by alternate hills or alternate rows of corn? I am sure the cornstalks would be a most excellent protection, for winter, even if other mulching were used; and when the berries get ripe the cornstalks could be made to be of good service in keeping the fruit out of the mud and dirt. I do not know that I ever had any more satisfactory mulching for keeping the berries out of the dirt than dried-up cornstalks. The greatest objection was it was a good deal of work to place them around the plants.

HOW TO GROW THE LARGEST NUMBER OF PLANTS FROM A SINGLE STRAWBERRY-PLANT IN ONE SEASON.

M. Crawford, in his new catalog, devotes a page to the above. He says that, with proper arrangement, we may raise several hundred or may be a thousand. Of course, it will depend on the variety. If you want a fair description of all the new strawberries on the market, write to M. Crawford, Cuyahoga Falls, Ohio, for his new catalog. I suppose you know that friend C. has been for years authority on every thing pertaining to strawberries. There is one thing about his catalog that is refreshing. He does not praise every new plant he describes.

HEAVIER TESTIMONY STILL IN REGARD TO SWEET CLOVER AS A FORAGE PLANT.

Mr. Root:—I have been reading in GLEANINGS for and against sweet clover. Well, I have had a good deal of experience with it myself, and consider it a valuable plant as a forage for cattle and horses. If cut and allowed to wilt, cows eat it readily and thrive upon it, giving finely flavored milk and butter. Many acres of it are grown here around the shores of Utah Lake, upon land so heavily charged with mineral (alkali) that other crops will not grow at all, just for the purpose of reclaiming the land. After the clover crop, good crops of grain will grow. In addition to the value of the tops, the *roots* are also (*I* consider) more valuable, being one of the best root crops grown for cattle. Why, cows are just crazy for them. How I found this out was, I plowed up a five-acre piece of sweet-clover land in the fall of the year, seven years ago, after the crops had been gathered and the cattle turned into the fields. Imagine my surprise on seeing them all gather upon this piece of plowed land and eat those clover roots down. The cows almost doubled their flow of milk. This lasted for weeks until the land was tramped so solid that they could not get another root out of it, and the plowing, I think, didn't do much good. In addition to these values the plant is valuable as a fiber-producing plant. A number of years ago, at one of our county fairs I saw some fine towels made of the fiber of sweet clover. They looked much like linen, and were very strong. So much for sweet clover. I have no seed to sell.

Provo City, Utah, Feb. 17. ELIAS JOHNSON.

Well, friend J., I am astonished too. Where sweet clover has grown very rank, I have noticed the great fleshy roots; but it did not occur to me that they were of any value more than to furnish needed nutriment to the soil—going away down deep into the ground as they do, and pulling up the fertility. I can readily understand, however, that cows that have once acquired a taste for it would eat the fleshy strong-flavored roots. In fact, I have chewed pieces of the root just to see how strongly they were charged with the peculiar flavor that belongs to the flowers, tops, and seeds; and I confess I am astonished again to know that it has been used as a fiber plant. I knew its great value along the shores of Salt Lake. My impression is you have also dropped another valuable hint. In cutting sweet clover for feed it should be cut just before blossoming, and allowed only to wilt instead of getting dry. If it gets too dry the leaves drop off; but I think it can be cured without any trouble when it is only wilted, as you say. I believe much the same treatment is used to get the best quality of alfalfa hay.

THE NEW GIGANTIC GIBRALTAR ONION; MANUM GIVES HIS EXPERIENCE WITH THEM.

I tried them last year and I find them very large and sweet. They are the nicest onion to eat raw that I ever saw. I have passed them around among my neighbors, and all pronounce them very fine. One man said he could eat one of them as freely as an apple. I find they will keep well if braced up. I have some fine ones *now*; but if kept in boxes or barrels, even in potato-boxes, they will not keep well.

Bristol, Vt. A. E. MANUM.

LESSONS TO BE GATHERED FROM THE ZERO WEATHER.

The first one is, that any one who wants proof that neither Hicks nor anybody else in the line of weather-prophets has any sort of glimpse of what the weather will be a whole year ahead, or even a month, can now have such proofs. The weather for the first half of February has given the almanac-makers a chance to immortalize themselves if they are honest. And, by the way, not a year passes that we do not have some marked divergence in weather, and something that is so wide-spread that a weather-prophet, if he had *any* glimpse at all into the future, would be sure to take cognizance of it. Will the good friends who insist that there are prophets who can tell the weather a year ahead, point us to the place where anybody has predicted this present blizzard? The thermometer may have been lower in some localities; but my impression is that no one living ever saw the mercury so low, for so many days in succession, and clear sunny days at that.

Another lesson is, have your cellars, houses, stock, and perishable crops fixed so as to be safe in spite of severe weather. I was more fortunate than I knew of when I fixed the steam-pipes so as to have them hot under the floors of our home. No water-pipes have been frozen or burst, and nothing has been injured, and I can say almost as much for our water-pipes here in the factory. But we have suffered some slight damage. For a good many years I have thought bee-keepers did not realize the importance of chaff hives of some sort; and I still think that the chaff hive of my planning, as given in the A B C book, is about what is needed for such a winter as this. In our locality, about 20 below zero is the coldest recorded, by accurate thermometers. We are told by the papers that even in the neighboring State of Michigan, in the northern part, they have a record of *50 below zero*. Very likely many bee-keepers will suffer.

Our Roll of Honor.

I want to join the "Roll of Honor," as we began to take GLEANINGS in 1879, and have almost all the numbers since then. I lent some out which were never returned. We have quite a pile of "Juvenile" GLEANINGS; also have A. I. Root's picture with Blue Eyes. I do not think I can ever give up GLEANINGS. Our Homes has been a great help to me, and I do enjoy reading the whole of it. I should like to clasp the hands of all the A. I. Root family, but more especially those of A. I. Root. MRS. A. C. HARTWELL.

Challacombe, Ill., Jan. 11.

I have taken GLEANINGS since 1876, and I have them all yet. Part of them are bound, but the most of them are simply tied in four places with stout strings after they are arranged in regular order, so I can refer to any year's journal in the past 23 years that I see fit to. I have been thinking you may get yourselves into more of a job than you bargained for by offering the journal to old standby subscribers. We *all* enjoy the Home Papers first rate, and have been very much encouraged in our religious warfare. For my *own* part I guess I should have given up the bee business long ago if it had not been for GLEANINGS.

Bedford, Iowa, Jan. 11. JAS. S. WILLARD.

I wish to be numbered among the stay-by friends of GLEANINGS, having been a subscriber about 21 years, as nearly as I can remember. Through a mistake of the postmaster, several copies addressed to Frank Sage, Colebrook, Conn., fell into my hands. I was a boy then, but I remember very distinctly the struggle I had with my conscience as to whether it was right for me to keep those few numbers or not; but, thanks to the influence of the Home Papers, right prevailed, and I returned them. I sent on my subscription, bought up the back numbers, and, as the Sunday-school books say, have been happy ever since. I have Vol. I. to V. bound in one book, besides several other volumes neatly bound. We hold all Rootville in the highest esteem, and hope that Uncle Amos and his faithful wife may be spared to us a good many years yet. BURTON L. SAGE.

New Haven, Conn., Jan. 11.

I am tied up in the house with the grip, or I should have written before this time. My bee-keeping commenced in the fifties, with Quinby's box hive; then some time in the sixties I read Langstroth, and subscribed for the *American Bee Journal*, published by Sam'l Wagner, Washington, D. C. I have copies of the *A. B. J.* of about this time, with articles from Novice, which were read with very great interest, as I was then practicing with the frame hive, swarming artificially, and rearing my first Italian queens. I was interested in every thing that could give me any light on the subject. In the early seventies, my health failing, it was deemed best for me to go away from bees a few years; so in 1873 I came to Denver and missed the first volumes of GLEANINGS, but I suppose my partner had them in Illinois. In looking over my pile of volumes I find the oldest is for 1876. The Home Papers I have from the first; and I must bear testimony to their great helpfulness to me these many years. I have also been very much interested in your health talks, travels, etc. Your true friend and brother in the Lord, J. L. PEABODY.

Denver, Colo., Jan. 10.

I hope you will excuse me for presenting my name as one of the veterans in taking GLEANINGS, so late in the day; but, nevertheless, I want you to know that I am one of them if no more. I commenced with the second volume, and I have all up to the present, filed away. I learned many a lesson from GLEANINGS, and I love to go away back in mind to those early days and ponder over and live over those happy days. I have met you but once, and that was at the convention of the North American Bee-keepers' Society at Indianapolis, in 1886. I then lived in Indiana. Probably you remember my exhibit of honey at that meeting. You saw some work done by the bees, with my help, that you likely never saw before, and none since. That was letters formed in penmanship, my address in full, and a skeleton of a queen. This was a part of a display of honey that I exhibited at our State fair a few days previously. One other thing I wish to mention: I exhibited some of those plain sections of honey at that fair you have been talking about of late, and I have some of those fence separators to-day that I made then, as nearly like those you are using now as can be from pictures in GLEANINGS, and those plain sections gave me a good display every time So much for plain sections away back in early days.

I now live in Indiana. I helped organize the State Bee-keepers' Society at Indianapolis and was the first to introduce the socials or picnics in Indiana in which meetings I enjoyed many a happy hour. I still take GLEANINGS, and always expect to as long as I live and it is published. A. COX.

Summertown, Tenn., Jan. 14.

I received your present. Accept thanks. I showed it to the children, and they are busy comparing it with the real cells They read GLEANINGS and are well acquainted with "Uncle Amos." In fact, our oldest son is named Amos. He is 19 years old, and wanted to go and fight the Spaniards.

We are in the foot-hills of the Coast Range of mountains, about forty miles from the coast; nearest railroad station is nine miles. The honey flora here is the afilaria, vine maple, mountain sage. The afilaria will grow all winter, and bloom when the sun shines. The vine maple blooms just after fruit-bloom, and the mountain sage blooms in June. The country here is very different from the East, there being two seasons —the wet and dry. It seldom freezes, and stock of all kind does fairly well all winter. Bees generally winter well, and fly almost every day, and carry pollen all winter. We have all had the grip, and know how to sympathize with you. There is a mineral spring close to us, the water of which is good for grip; in fact, I believe the water will cure many stomach troubles. JESSE W. THORNTON.

Oak Creek, Ore., Feb. 14.

I have taken GLEANINGS since the fall of 1883. You sent it to me gratis one year in consideration of my having been sick so long. That drew me very close to you, for I had learned to love you through your Home Papers. Our Homes turned my thoughts in the right way. They taught me of Jesus. I sought him and found him, *bless his name.* I have always wanted to tell you, but didn't quite know how. Please excuse my blundering, and remember that I expect to take GLEANINGS as long as I am able to read it, and I feel it will continue to prosper. May God bless you for the good work you are doing. C. W. VANHOUTEN.

Cuba, Ill., Jan. 11.

In response to your call for those who have taken your paper for 25 years or more, I stand up and speak. I am not sure that I have any right to arise, as I have not any record at hand to refer to. I think I commenced taking GLEANINGS some time in the second year you published it. I first saw a copy at my old friend's, Moses Quinby. I subscribed for it at once, also sent for the back numbers. I have every issue of GLEANINGS that ever was printed, and I prize them, as they contain a vast amount of useful information. If I am not old enough to be in your class, please omit me and there will be no harm done.

Randallsville, N. Y., Jan. 21. E. D. CLARK.

I wish not to claim to belong to the Roll of Honor; but as I became interested in bees in the 70's I subscribed for GLEANINGS in 1878. Bee-keeping is a side issue with me, and very largely recreative. My yield last season was 60 lbs. of comb honey per colony. I greatly admire the principles set forth in GLEANINGS, of thrift, morality, and Christianity, and trust that you may be spared many years yet to your sphere of usefulness. F. P. NASH.

710 O St., Washington, D. C., Feb. 20.

Friend Root:—After reading the letters from old-timers I examined my stack of GLEANINGS, which is over 3 ft. high, and found volume III., 1875. I have been a subscriber ever since, and expect to be as long as I live. R. B. PARKER.

La Fayette, Ind., Jan. 17.

I have taken GLEANINGS ever since it was first published; and if I am not too late I will accept the "little present." I can not remember how many years since the first number came out. G. W. DEAN.

Boneta, O., Jan. 13.

I have been a subscriber since 1876. I then lived in Lapeer, Mich. I farm and operate a cotton-gin in connection with bees; but I prefer working with the latter. While bees fail some years to return any income, I believe that, after my 16 years in Texas, they can be depended on as well as or better than any other rural industry. WM. WRIGGLESWORTH.

Ocee, Tex., Jan. 5.

RIDING ON SUNDAY FOR PLEASURE.

Friend Root:—I want to enter a protest against your article, "Notes of Travel," for Jan. 1, especially at this time when the tendency is to break down the Christian Sabbath—yea, the American Sabbath—and make it a holiday. Earnest men and women all over the country are working, writing, and praying to stop this very evil that you are laughing about and print in a public journal I refer to wheel-riding on Sunday, for pleasure, and yourself a preacher of righteousness!

Years ago temperance (?) men would take a trip back into the woods, and there indulge in the "good crather." O consistency! thou art a jewel. But I never knew them to come home and tell about it. Dear Bro. Root, for the sake of our young people, and for the sake of our Lord's day, frown down every thing that is merely "worldly pleasure." If I have written too strongly, pardon me, for I felt that I must speak out Your temperance talk in the same issue did me lots of good. G. S. STANCLIFF.

Chasm Falls, N. Y., Jan. 6.

Dear brother, we so nearly agree in this matter, that, if you will not come over and stand on my side, I don't know but I shall have to confess I did wrong, and go over and stand on *your* side. I should have added, at the time I wrote that, were it not for the amount of space it was going to take, that I never ride my wheel on Sunday for pleasure, neither does Bro. Kratz, I am sure. I use it to go to meeting, and to go out in the country when asked to speak or help in a Sunday-school, but never for recreation. In the case you allude to, Bro. Kratz uses his wheel a great deal to make his appointments to preach. He had never seen a chainless wheel, but had heard much about them. All the riding he did that Sunday morning occupied only a few minutes, and there was nobody present to take it as an example. Perhaps I did wrong to mention the matter at all. In attendance at that Sunday meeting there were quite a lot of youngsters. After the meeting was over I saw that they were quite curious about that wheel that had no chain. Now, was it my duty to look sober and solemn because it was Sunday, and refrain from looking at or speaking of the wheel? I can not think it was. I showed it to the boys, got to talking with them about it, and answered their questions and let them see that I was not only flesh and blood like themselves, but that I had boyish ideas and sympathies, even if I *was* gray-headed. I did not get on to it, nor ask the boys to get on; but I did use it as a means of getting acquainted, and letting the boys know that I loved them, and felt anxious about them, and sympathized with them in their sports and pleasures. We might not all draw the line in the same place, but I do think we may err in both directions. May the Holy Spirit guide and direct us!

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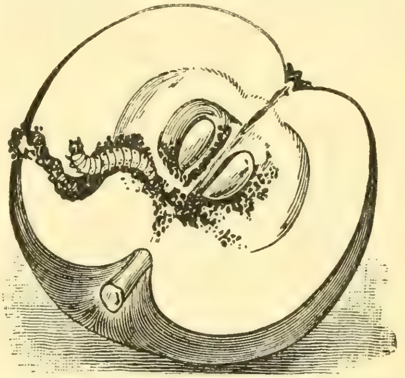

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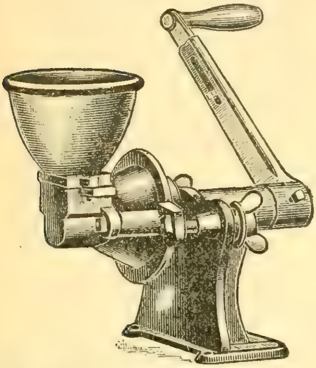

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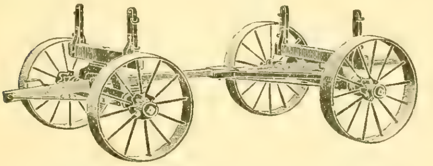
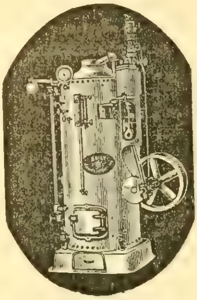
If you want the best low-down wagon you should buy the Electric Handy Wagon. It is the best because it is made of the best material; the best broad-tired Electric wheels; best-seasoned white hickory axles; all other wood parts of the best seasoned white oak. The front and rear hounds are made from the best angle steel, which is neater, stronger, and in every way better than wood. Well painted in red, and varnished. Extra length of reach and extra long standards supplied without additional cost when requested. This wagon is guaranteed to carry 4000 lbs. anywhere. Write the Electric Wheel Co., Box 95, Quincy, Illinois, for their new catalog which fully describes this wagon, their famous Electric Wheels, and Electric Feed-cookers.



A FARM POWER

IS A NECESSITY



in the practice of modern agriculture. They are **needed for shelling corn, grinding feed, cutting fodder or ensilage, separating cream, wood-sawing, pumping water**, and a host of other things.

LEFFEL ENGINES and BOILERS

are clearly the best for the purpose. Either **Upright or Horizontal;** from 3 h. p. up. Safe, simple, easy to run. They are quick steamers, and require little fuel. Pamphlet with prices on application, stating size power wanted.

JAMES LEFFEL & CO., Box 44, Springfield, O.

In writing, mention Gleanings.

For Sale. 20 Strong Colonies Hybrid Bees, Dovetailed hives. Most of the frames wired combs, straight, in good condition; $2.00 each.

M. GARRAHAN, Kingston, Pa.

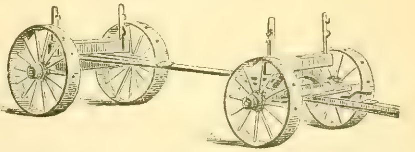
Farm Bee-keeping

Is one of the leading departments in the **Modern Farmer and Busy Bee,** the best **Farm** and **Bee** paper in existence. Write for sample copy and for clubbing rates with any paper you want.

E. TAYLOR ABBOTT, St. Joe, Mo.

Farm Wagon for only $19.95.

In order to introduce their Low Metal Wheels with Wide Tires, the Empire Manufacturing Company, Quincy, Ill., have placed upon the market a Farmer's Handy Wagon, sold at the low price of $19 95. The wagon is only 25 inches high, fitted with 24 and 30 inch wheels with 4-inch tire.



This wagon is made of best material throughout, and really costs but a trifle more than a set of new wheels and fully guaranteed for one year. Catalog giving a full description will be mailed upon application by the Empire Manufacturing Co., Quincy, Ill., who also will furnish metal wheels at low prices made any size and width of tire to fit any axle.

The Faultless Sprayer.

Few little inventions make the stir and do the amount of good that the little tin spray-pumps did that were so extensively introduced last season. Although we have a machine for spraying potatoes, that cost $25.00, we let it stand in the tool-house, and sprayed a great many acres of potatoes with a little spray-pump similar to the one pictured here. It did the work easier and cheaper and better. A boy with some packages of Paris green (a large spoonful in each paper) in his pocket, and in his hand a spray-pump weighing only about a pound, will do the whole job in a very little time; in fact, one boy takes his hoe along and does the hoeing and spraying both, without any machine to lug back and forth, nor any chance of said machine getting out of order. As soon as we began to offer them for sale others seemed to discover their advantages; and although we ordered pumps from the factory at several different times, we were sold out in spite of us when we wanted them most.

Well, we have now a tremendously big stock of some that are considerably improved over the ones we had last year, and the price is even *lower*. These pumps are so perfect that the spray looks like steam out of the nose of a tea-kettle; in fact, you can fill the air in a room with vapor with one of these machines. The price of the new improved machines is only 60 cts.; 3 for $1.50; ½ dozen, $2.50; dozen, $4.50. You can have the same thing made of brass for only 25 cts. more on each sprayer. As the brass can not rust, they are good for a lifetime. We can send the tin ones by mail for 20 cts. extra to cover postage. As the brass ones are somewhat heavier the postage on them will be 25 cts each. We have two or three dozen of the old-style, such as we sold last year, on hand, which we offer, while they last, at 40 cts. each. Now do not say you can not afford a sprayer to keep the potato-bugs out of sight, for the great advantage of this little apparatus is that it is so little work to use it you can kill the bugs when they first start, and keep them down before your potatoes are injured at all. Thousands of people lost their potatoes last season just because it was too much work to fight the bugs.

With every machine is a stout linen tag, with full directions how to use the sprayer for all kinds of insects. Yes, this machine will answer for fruit-trees all right, but you would have to get up on a high stool, or climb a ladder, to get the spray all over a tree of any size. For spraying orchards a larger and more expensive machine is needed.

The A. I. Root Co., Medina, Ohio.

The Luxuries of Yesterday are The Necessities of To-day.

Twenty years ago, comb foundation was a luxury. To-day it is a necessity. We sell the Weed Foundation—the best made. Root's sections to go with them are unparalleled. Send for catalog. If a dealer, get our wholesale list. Beeswax wanted.

M. H. HUNT & SON, Bell Branch, Wayne Co., Michigan.

Don't Buy Supplies

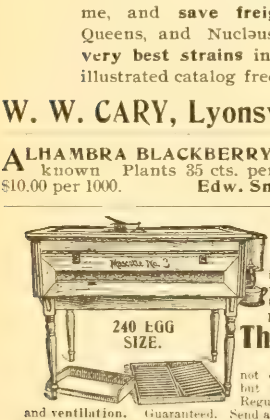
For 1899 until you see my 39th annual catalog. A full line of hives and fixtures best adapted to our New England climate. Also best brands of **Comb Foundation and Section-boxes.** I have also made arrangements to keep quite a general stock of

The A. I. Root Co.'s Goods, at their Prices.

Parties desiring these goods can get them of me, and **save freight charges.** Bees, Queens, and Nucleus Colonies from the **very best strains** in America. A 40-page illustrated catalog free. Address

W. W. CARY, Lyonsville, Mass.

ALHAMBRA BLACKBERRY. Earliest blackberry known Plants 35 cts. per dozen; $1.25 per 100; $10.00 per 1000. **Edw. Smith, Carpenter, Ill.**



A WASTE OF MONEY is never desirable or justifiable. It is worse than waste to put high priced eggs in a poor, imperfect incubator. **The MASCOTTE INCUBATOR** not only prevents such waste, but turns failure into success. Regulates perfectly as to **heat,** and ventilation. Guaranteed. Send at once for **FREE** catalogue.

Mascotte Incubator & Lumber Co., Box 18, Bedford, Ohio.

Headquarters for the Albino Bee.

The Best in the World.

If you are looking for the bee that gathers the most honey, and are the gentlest of all bees to handle, buy the Albino. I can furnish the Italians, but orders stand, as heretofore, 50 to 1 in favor of the Albino. I manufacture and furnish supplies.

S. Valentine, - - Hagerstown, Md.

In writing advertisers, mention GLEANINGS.

PEACH TREES 4 to 6 ft. at 3½ cts.; 3 to 4 ft. at 2½ cts.; all one year from bud; healthy and thrifty; no scale. Official certificate accompanies each shipment. Sample by express if wanted. Can ship any time. Trees kept dormant till May 10. **R. S. Johnston, Box 43, Stockley, Del.**

In writing, mention GLEANINGS.

STRAWBERRY Plants. Largest and choicest stock in the world (50,000,000; 100 varieties.) Lowest prices. Safely and cheaply delivered anywhere on continent. Catalog free. **Continental Plant Co.,**
Strawberry Specialists. **49 South St., Kittrell, N. C.**

In writing advertisers, mention GLEANINGS.

FREE! FREE!

A beautiful present with every order. Cheapest place in Michigan to buy your SUPPLIES. Send for a price list explaining.

W. D. SOPER, Box 565, Jackson, Mich.

WHAT have you for a one-horse power tile-mill (Hacket pattern); dies 3½ to 10 inches?

JAMES RUTHERFORD, Sims, Ind.

SPECIAL NOTICES BY BUSINESS MANAGER

BUSINESS PROSPECTS.

At this date last year we had shipped twenty-five full carloads, while we have sent thirty-five this year up to the same time. We are now shipping five or six cars a week, and have orders booked for over twenty cars. Smaller orders are coming in quite freely, and are being filled promptly. We have a much larger stock on hand to draw from than we had at the same time last year. Reports come from various localities of heavy losses in bees; and while we shall undoubtedly have all the business we can handle to advantage, it would be larger but for the recent extremely cold weather.

FACILITIES FURTHER INCREASED.

Our new engine was drawing so heavily on the old battery of boilers that we have found it necessary for safety to put in a new boiler of 350 H. P. capacity. This is being put in position as we go to press, and, we anticipate, will be in operation within two weeks. We shall then be able to hitch still more machinery on to the new engine if we can find a place to put it. We are able now to turn out about one-fourth more goods than with our capacity of a year ago.

METAL GOODS ADVANCING.

There are such marked advances in price occurring in almost all kinds of metal goods that we may not be able to maintain present prices very long on such goods. We have anticipated our wants for the season as nearly as we could estimate, and bought heavily before these advances occurred. Some of these supplies may run out before the season is over, and when we have to buy new stock at advanced prices we may be compelled to advance the price of the finished product. The early bird catches the worm. Moral—order early.

HYDE-SCHOLL SEPARATORS.

In a recent issue of GLEANINGS we illustrated the H. S. separators, and gave a description by the introducer. We have just shipped to O. P. Hyde & Son, at Hutto, Tex., a carload of goods, and among them were 5000 No. 1 H.-S. separators made of wood, and 500 of tin, also about 5000 No. 2 of wood, and 500 of tin. The No. 1 is used with the regular slotted section-holders with sections slotted four sides. They are $\frac{1}{12}$ thick, 4¼x18⅛, and can be furnished at $1 10 per 100; 500 for $5.00. The No. 1 of tin are only 3¾ inches wide, straight on both edges, as they are to be nailed to the section-holders. Price of these is $2.00 per 100. The No. 2 H.-S. separators are used with the 3⅝x5x1½ plain sections in the Ideal super, and have cleats and spacing-buttons on them. Price in wood, $1.75 per 100; or in tin, $3.50 per 100. We can not say that we can recommend these separators; but as we had to rig up tools for making them we are prepared to furnish them to any who may wish to try them.

A NEW SUPER FOUNDATION.

Mr. Weed has just finished a set of dies for making super foundation, 10 feet to the pound. The principal features of this are that the base is as thin as that of the natural, and the foundation nearly ¼ inch thick; but instead of being thin, like other foundation, walls are wedge-shaped — large at the bottom and taper to a point at the top edges of the cells. It *looks* very much like ordinary deep-wall foundation, but is in reality very different. As Mr. Weed has only small dies, and desires these for experimental purposes before making large dies, we will furnish this foundation in limited quantities at the rate of $1.00 per lb. Samples will be sent for 15 c.

According to our previous experiments the bees require considerable wax in the walls, and, no matter how thick the said walls are, they will thin them down, but not so the base. This latter must be as thin as the bees make it. For this reason we confidently expect this new foundation will give the nearest approach to no-gob comb honey of any thing ever yet produced; and we also expect that it will be worked out quicker than the drawn foundation we formerly made. We will have cuts in our next issue that will show the product, so that a better understanding of its general character may be had.

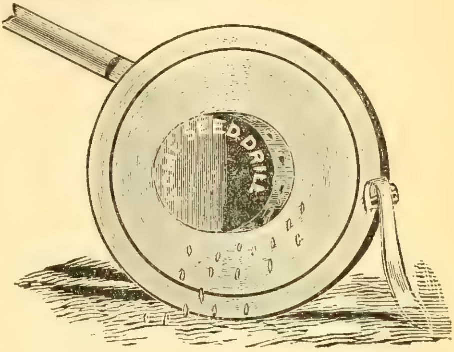
Mr. Poppleton, of Florida, has already tested it; and although the pieces ran 6 ft. to the pound, the walls and base were as thin as natural when worked out into comb by the bees.

Special Notices by A. I. Root.

On page 195, instead of "braced" onions read "traced" onions.

A LOW-PRICED SEED-DRILL SUITABLE FOR GARDENING UNDER GLASS, ETC.

The drill pictured below, I know, will work all right, because we have used one made on a similar principle, for many years. It can not very well clog, and it drops about as evenly as any drill that can be made on any principle.



A NEW LOW-PRICED HAND SEED-DRILL.

The price of the above little machine is only 60 cents, and for 20 cents more it can be sent anywhere by mail. There is no machinery about it to get out of order. You can quickly adjust it so as to drop the seeds thick or thin as you want them by running it along the floor. If your seeds are high-priced, like cauliflower, lay down a newspaper, and then you can easily scrape up your seeds and save them. We have the drills in stock ready to send out by the first mail or by express. These are especially for sowing seeds in hot-beds and cold-frames.

PRICES ON STRAWBERRY-PLANTS FOR THE SPRING OF 1899.

Let me say at the outset that I can not grow good plants at the prices they are offered now in almost all of the agricultural papers. I do not mean to say that those that are offered for $1.50 per 1000 are not good, for I do not know. I do know, however, that ours are true to name, and grown in ground that has been made exceedingly rich at great expense. The best prices we care to make on the standard old varieties will be as follows: 15 cts. for 10 plants; 60 cts. per 100; $4.00 per 1000. These prices are for the first column.

The new varieties listed in second column will be one-half more than the above prices, with the exception of the Nick Ohmer, which will be twice the above prices.

OLD STANDARD VARIETIES.
Jessie
Haverland (Imp.).
Bubach (Imp.).
Warfield (Imp.).
Edgar Queen (Imp.).
Sharpless.
Parker Earle.

NEWER VARIETIES.
Rio.
Marshall.
Carrie (Imp.).
Wm Belt.
Margaret.
Nick Ohmer.
Brandywine.

Above by mail at an additional cost of 5 cts. for 10, or 25 cts. for 100. The varieties are all perfect, with the exception of those marked "Imp.," which are imperfect. We shall probably be ready to ship strawberry-plants as soon as this reaches you. In the lists we have made, the first mentioned are the earliest, and the last, latest.

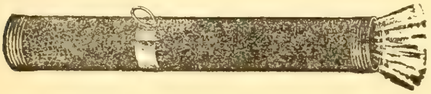
If you want my opinion as to the best strawberry—that is the best eating right from the patch, I would put the Sharpless at the head. If you want the earliest *good-sized* berry, I would recommend the Rio. If you want the most prolific—that is, the one that bears the most quarts—I would suggest Warfield, Haverland, and also Parker Earle if you give the latter exceedingly good culture and rich ground. If you want the largest berry I rather think it would be the Nick Ohmer. If you want the firmest for shipping, it would be the Brandywine. The handsomest berry is, perhaps, the Marshall. So you see there are many things to be considered in saying which is best, all around.

KENDEL'S GIANT SWEET CORN, ETC.

As a single customer offered to take the whole four bushels I advertised at $3.50 per bushel in our last issue (but I did not let him have it *all*) we have been obliged to advance the price to 20 cts. per quart; $1.25 per peck; $4.50 per bushel. It looks now as if those who grew some choice sweet corn for seed last season did about as well as those who raised seed beans. By the way, we have just secured some *home-grown* beans, 13 bushels in all, of Navy, York State marrow, and white kidney. Price will be given on application. Wax beans, both green and yellow podded, are going to be practically out of the market, and I am afraid they will be gone before it is time to plant them here in the North. We have been sending north, east, south, and west, but the reply comes every time, "Sold out"—that is, where anybody wants a bushel or more.

A PORTABLE ELECTRIC LAMP.

I have been for years waiting and watching for two things that I was sure would come, and now they are both here. The first was a dry battery that would give a good strong current, and which could be sold for a nickel. This 5-cent battery weighs only 4 oz., and yet it gives quite a strong current that may be used for a great variety of purposes. The second was a portable electric lamp to be worked with these cheap dry batteries. I have had one in use for a year, in a square form, that cost $5.00. Recently an apparatus, represented in the cut below, has come out for only $3.50; smaller size, $2.50.



A DRY-BATTERY ELECTRIC LAMP.

The whole apparatus is 14½ inches long, and about 1¾ in diameter. It contains four cells of the cheap battery I have been speaking about. On one end is an electric globe well protected, and on the other a cap that can be turned on or off. Turning it on produces a light, and the opposite way extinguishes it. This apparatus will give 20,000 flashes of brilliant light; or it will give a steady light for ten hours; or you can use it a second, a minute, or fifteen minutes, until you have used up the whole ten hours. The dry batteries themselves are good for from 60 to 90 days. The apparatus weighs just 1½ lbs. It can be used as a bicycle-lamp, or for exploring caves, tunnels, dark closets, etc. It is a splendid thing for plumbers who are obliged to work in dark corners, especially where leaking gas might induce an explosion with any common lamp or lantern. When making connections for our pipes to carry steam from our factory over to my home we had got almost through one night; but it was growing dark, and there was too much wind to use any sort of lamp. The men thought they would have to give it up, although it was in the dead of winter, and a storm was coming. I told them I could put a strong light right on the pipes and connections. They had but little faith; but I ran for my electric lamp, and soon made their work plainer down in that muddy ditch than it would have been in open daylight, and the work was finished. At another time when a hot box shut down our whole factory it was desirable to have a strong light down between the raised-up shaft and the box of babbitt metal. My electric lamp hit the spot exactly. When Mrs. Root wakes up in the night, and wishes to see the dial of the clock, just one flash of my little lamp makes it plain. If she were to scratch a match it would wake me up. You press the button, and a beautiful light shines on the spot you wish to see, and nowhere else. Release the button, and it is gone. The lamp I use can be made to give a tolerable light for from 15 to 20 hours. When your light is gone, a new battery costs 20 cts.; so you see the light costs only about a cent an hour, and you can have it in installments of a second at a time if you wish. Some of our people think I make a big fuss about a little matter; but I tell you this is one of the achievements of modern science, and sooner or later is destined to play a great part in the machinery of life. For further particulars address the The Acme Electric Co., 1659 Broadway, New York.

CHEMICAL EXAMINATION OF CANNED MEATS.

The above is the title of a bulletin just issued from the Department of Agriculture, and this bulletin is from our good friend Prof. Wiley, U. S. Chemist. Samples of all the canned meats in the open markets of the United States, as well as samples furnished by the War Department, show that our canned meats are honest, straight goods. Not a single can has been discovered that showed that the nutritious part had been extracted to make extract of beef. The canned *corn* beef contained a very small amount of common salt, and also a little saltpeter; but the quantity was no larger than that found in the average farmer's beef or pork barrel. It makes one think of the silly stories of a year ago about the comb honey produced by honest bee-keepers being manufactured out of glucose and paraffine. At the time the statement was made through the papers that our canned meats were unwholesome I felt sure it was a mistake, for I have frequently partaken of them freely in traveling, when I have found myself unable to get fresh meat; and the contents of the cans have always been good and wholesome. Prof. Wiley further states that they found the cans made of good tin, and the soldering was done in such a way that not a trace of any thing unwholesome was found in any can that might have come from either the solder or the metals forming the can. I rejoice at this, because it is a fearful thing to spoil the confidence of our people in wholesome food products by any such unwarranted and untruthful statements.

Now, another big point comes in right here: Prof. Wiley says very positively what our medical men have been repeating for years past, that using borax, salicylic acid, or any such chemical, for preserving fruits, vegetables, or meats, is a thing that should be condemned. Not a trace of any thing of this sort was found in any of the canned meats on our markets. I believe our government is justified, not only in arresting parties for selling "preserving-powders," but I think our periodicals should be restrained from advertising any such pernicious compounds. Of course, they preserve fruits and vegetables so as to have them look very wholesome and appetizing; but the same powerful chemical that arrests decay prevents digestion and injures the stomach.

EARLIEST QUEENS reared in U. S.; increased facilities for promptness; all queens guaranteed. Write for prices from half dozen to 100
J. B. CASE, Port Orange, Fla.

Gleanings for the rest of the year for 50 Cents.

For the rest of the year—that is, from the time you send in your subscription till January, 1900—we will send GLEANINGS for **50** cts. The sooner you send your 50 cts. the more numbers you will get.

Our Low Clubbing Offer, or Two Papers for the Price of one.

For $1.00, sent in advance, we will send **Gleanings** one year, the **American Agriculturist,** and the Farmer's Almanac. In place of the *Agriculturist*, with no addition in price, may be taken the **O. Judd Farmer** or the **Prairie Farmer.**

For $1.10 we will send **Gleanings** one year, and either the **Ohio Farmer** or the **Michigan Farmer** one year. Send in your orders early.

The A. I. Root Company,
Medina, Ohio.

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Honey Column.

CITY MARKETS

New York.—Comb honey is pretty well cleaned up now, and we expect to clean out the rest of our stock during this month. Prices rule same, viz.: Fancy white, 12; No. 1 white, 10@11; amber, 9; dark and buckwheat, 6@7. Besides some California, there is not much extracted on the market. Demand is fair at unchanged prices. Beeswax, 27@28.

Hildreth Bros. & Segelken.
March 8. New York.

Detroit.—Fancy white comb is scarce and higher, and we now quote it 13@14; No. 1, 12@13; fancy dark and amber, 10@11. Considerable poor honey has remained in commission houses some time and is offered at 8@9; extracted white, 6½@7; dark, 5@6; beeswax, 25@26½.

March 9. M. H. Hunt, Bell Branch, Mich.

Philadelphia.—Honey is in fair demand, not much activity. Fancy comb, 15; No. 1, 12; amber, 10; dark extracted, 5½; amber, 6; white, 7. Beeswax, 27. We are producers of honey—do not handle on commission.

Wm. A. Selser,
March 9. 10 Vine St., Philadelphia, Pa

Chicago.—Fancy white comb brings 13c, and there is a good demand for it. No. 1 white is also wanted at 11@12, depending upon quality. Lower grades of white amber and mixed colors range from 8 to 10 cts.; with dark and buckwheat, 7@8; extracted white clover and sage, 8; basswood and alfalfa 7; amber grades, 6; buckwheat, 5½@6; beeswax, 27@28. Market generally healthy in tone, with best grades of honey scarce.

R. A. Burnett & Co.,
March 7. 163 South Water St., Chicago, Ill.

Cleveland.—We quote our honey market to-day as follows: Fancy white, 13@14; No. 1, 12@12½; light amber, 11; buckwheat, 8; extracted, white, 7; light amber, 6.

A. B. Williams & Co.,
March 8. 80-82 Broadway, Cleveland, Ohio

Albany.—Honey market quiet, with stock well cleaned out of both comb and extracted. Extracted wanted; selling at 6@7½; comb, 7@12.

MacDougal & Co.,
Successors to Chas. McCulloch & Co.,
March 10. Albany, N. Y.

Columbus.—We can notice an improvement in demand, and market is in better shape, but no advance in prices as yet. Fancy, 12½; No. 1, 11½@12; amber 10; dark, 8.

Columbus Commission and Storage Co.,
March 8. Columbus, Ohio.

Boston.—Our honey market is as follows: Fancy white comb, 13; A No. 1, 12; No. 1, 11@12; No. 2, 10; extracted, 8; light amber, 7@7½.

Blake, Scott & Lee,
Feb. 28. 57 Chatham St., Boston, Mass.

For Sale.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60-lb. cans for $7.20.

The Arkansas Valley Apiaries,
Oliver Foster, Prop.
Las Animas, Bent Co., Colo.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange one thousand wide frames with tin separators, for something I can use.
C. J. Baldridge, Kendaia, N. Y.

WANTED.—To exchange two small printing-presses and printing outfit for bloodhounds, ferrets, fancy poultry, bicycles, or something I can use.
James M. Denham, Valley, Ky.

WANTED.—Your address for a free copy of my book on queen-rearing.
Henry Alley, Wenham, Mass.

WANTED.—To exchange supplies, nursery stock, or seed potatoes, for printing-press, honey, or wax
O. H. Hyatt, Shenandoah, Page Co., Iowa

WANTED.—To furnish my hives and sections, to careful men, for a share of No. 1 clover honey. Also 4 sizes of the prize comb-honey cartons, and 68 pages of "Facts about Bees," for 6 cts. in stamps.
F. Danzenbaker, Washington, D. C.

WANTED.—Some good person to have full charge of an apiary of 125 colonies, to run on shares.
E. A. Harris, No. Petersburgh, N. Y.

WANTED.—To exchange a trio of white Holland turkeys for bees, queens, cash, or offers.
J. F. Patton, Newtown, Ohio.

WANTED.—To exchange man-trailing bloodhounds, foundation-mill, and bone-mill, for L. hives in flat.
Elias Fox, Hillsboro, Wis.

WANTED.—To exchange 100 colonies of Italian bees in 8-L.-frame hives (at $3 00 per colony) for extracted honey, seed potatoes, or something I can use
A. W. Gardner, Centreville, Mich.

WANTED.—To exchange new and second-hand bicycles, bicycle parts, or sundries, for Barnes saw or engine.
Twin City Cycle Co., La Salle, Ill.

WANTED.—Position in western apiary by boy; age, 18; good habits; references, if wanted; some experience. Address Ralph E. Dodge, Lebam, Wash.

Farm Bee-keeping

Is one of the leading departments in the **Modern Farmer and Busy Bee,** the best **Farm** and **Bee** paper in existence. Write for sample copy and for clubbing rates with any paper you want.

E. TAYLOR ABBOTT, St. Joe, Mo.

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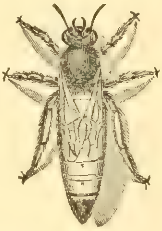

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

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STRAY STRAWS FROM DR C. C. MILLER

DISCREPANCY between statements on pp. 170 and 186 as to high board fences being bad or good for bees. Wonder if the thing doesn't vary as to locality.

THAT HOME TALK of A. I. Root, last number, made me think what a reliable set in general bee-keepers are. I never lost a cent by one of them except once.

DOOLITTLE says he's using foundation more than two years old. Say, Doolittle, last year I used lots of brood foundation six years old, and I couldn't see but it was as good as new.

HARD MAPLE grows fast, according to a statement on p. 168. Any thing but fast, "in this locality." [Very slowly here, and yet all depends on what is meant by "slowly." That is a relative term.—ED.]

"IT IS NEEDLESS to sacrifice a *whole* apiary to any single experiment," says Doolittle, p. 183. Of course it is; but why couldn't you tell me of my faults privately, Doolittle, instead of coming out in that public manner?

I'M REQUESTED to tear in pieces C. P. Dadant for so strongly advocating big hives. The trouble is, I can't find out whether he's right or not. In the meantime I might set on him my good friend D. N. Ritchie, the man who gets good crops of honey with marvelously small hives.

"I WOULD STEAL before I would go to the poorhouse," A. I. Root thinks is false pride. I should say so. When you simmer it down, that means, "I'd rather steal $100 from a single person than to take it honestly from a lot of people who are willing to make me a present of that amount."

DZIERZON offers a new kink. Clip both sides of a virgin queen in the house before a window till she flies with some difficulty, and she'll be fertilized near home (Aspinwall's idea), and then when she gets to laying she'll need no other clipping. [This will be a rather delicate job. In actual practice I should expect that either there would be too much clipped off the wings, so the queen would get lost, or not enough so but she could fly just as far as she pleased.—ED.]

THE SUM OF $30,000 was lately paid for a new carnation. Yesterday I stood admiring a vase of the flowers in Chicago. Pulling out my rule I found each measured fully 3 inches across, and I thought, "When so much can be done with a flower, why can't red-clover tongues be produced in bees, and also nonswarmers?"

KEEPING HUSHED UP the presence of foul brood, as mentioned p. 176, seems about the natural thing to do, but there may be a little question whether it's the best thing. Where there's a case of smallpox I've known the family very anxious to have it hushed up; but the public authorities insisted on having the house very distinctly placarded "Smallpox!"

A. E. MANUM doubts "that bees purposely make use of foreign substances" in cappings. If he will turn to Cheshire, p. 174, he can see a picture of brood-capping magnified 35 times, and will learn that the *major portion* of brood-cappings is made up of nibblings and scraps, cocoons, and pollen-grains, and from this same contamination "not even the cleanest super-comb is free."

IN REPLY to H. L., my best colonies have perhaps 13 frames of brood at beginning of clover harvest, the average being 8. How is it at Medina? [My best comb and extracted honey colonies (and you know I run for both on the same hive) would have ten and twelve frames of brood; but about the time honey begins to come in well, if the season holds out I get them on to about eight.—ED.]

THAT CONSOLIDATION of 18 swarms, p. 174, reminds me. Years ago I visited E. D. Godfrey, Red Oak, Iowa, and he gave me a vivid account of an experience he had had. I think it was 60 colonies that were taken out of cellar in spring, and about all of them swarmed out at the same time! The air was black with them, and they went back into only a small number of the hives. He candidly admitted that it made him so sick he went straight to bed. I think he afterward did something to even them up.

CRITIC TAYLOR comes up smiling in *Review* with a new argument in favor of boiling foul-broody honey only 15 minutes. The specific gravity of honey is nearly a half more than that of water, hence when you boil honey you make it a lot hotter than 212°. I don't know the proper reply to that, so I've taken to the fence, and am looking for a soft spot to alight beside Bro. Taylor. Gather up your duds, Ernest, and come along. But I wish some one would tell us just how hot boiling honey is. [See editorials.—ED.]

EDITOR HUTCHINSON and C. P. Dadant are at loggerheads as to the expense of queens in spring. One says they are the *least* expensive part of a colony, the other says they are the *most* expensive part. Hutchinson says when bees swarm they build a lot of queen-cells, and "the building of these cells and the feeding of the embryo queens cost the bees some labor, and that is all that queens cost the regular honey-producer." That wouldn't make them cost 10 cts. each; but getting them fertilized and keeping them through till spring will make them cost 90 cts. more.

A HEDGE OF EVERGREENS is a fine thing to slow up the wind in winter, but you must remember that it will also slow up a breeze in summer, so that, with a dense hedge on east and west side, combs may melt down in a hive in dense shade. [Yes, it is true that, while evergreens make most excellent windbreaks, they produce almost a dead calm under a hot pouring sun in summer. Our apiarists have often complained about its being so "dreadfully hot" in our apiary in the summer, and I suppose it is because of those same evergreens that are so useful in winter but so useless in summer.—ED.]

I'M ASHAMED TO SAY I had forgotten that Cheshire gives what is probably the true cause of the blackening of brood combs, that is the residua of the bowels being "plastered outside the exuvium, within the cell-wall." As to darkening in supers, J. E. Crane is sound, and we may as well dismiss the dirty-foot business entirely. But I do think that bees add dark material to the *outside* of white cappings when left long enough. [I believe that Crane and Cheshire are, on the whole, correct, although I am inclined to the opinion that propolis has probably as much or more to do with discoloring honey than pollen.—ED.]

I'D LIKE TO SEE Doolittle use tin separators 20 years without cleaning, where I live. He'd have to enlarge his supers. [Yes, yes. Dr. Miller, if my memory serve me correctly, has more real propolis to the square foot than Doolittle has to the square yard. My comparison may not be accurate, but I know there is a vast difference. In the State of New York, fixed or self-spacing frames are used very largely; in Illinois, very sparingly, at least in the northern part of the State. There can be no question but that, in this matter, locality does have a great deal to do with one's ideas and real practice.—ED.]

SOME MAY HAVE a misunderstanding from the statement, p. 176, that Ontario has proportionately less foul brood than any other country. Foul brood has just started in Belgium, if I am rightly informed, and I think there are countries where foul brood is unknown to bee-keepers. [I hope there are many countries and States where foul brood is unknown. It begins to look as if, next season, there would be a good demand for bees, owing to the fact that there will be rather heavier winter losses this year than last. Sending bees in the form of nuclei is very liable to carry foul brood, if those nuclei come from a locality that has been or is infected with the disease.—ED.]

"THE SIDES of the cells are porous, also the cappings," says James Cormac, page 180. Brood-cappings are porous, cappings of honey less so, Cheshire finding about one cell in 16 not porous; but he found no porosity whatever in the walls of cells. [I think we may safely say that the cappings of both brood-cells and honey-cells are porous. One does not need to consult any authority to prove that; but if one will take a strong glass, and inspect the sides of honey or brood cells he will see that they seem to be more dense, and are probably impervious to air. We know that honey ripens somewhat after it is capped over, and there is no way it could ripen unless the cappings were porous.—ED.]

"BEST THING in the line of an interview I ever heard from a bee-paper," said my auditor when I finished reading the Root-Crane interview, p, 169. [The Crane part of it was all right. Some little time ago, when I had that little chat (interview) with Chalon Fowls and H. R. Boardman, I regretted that we did not have our stenographer on hand to take down in permanent form the valuable suggestions that were thrown out. It is my purpose to introduce this feature in the future as often as conditions will permit; so that those of our bee-keeping friends who come here must not be surprised if they are put through a course of questions—not so much to see how much they know, but to pump out of their wells of knowledge as much as they are willing to give.—ED.]

"YOUR CHOICE for 16 cts.," marked over a dozen sections (p. 168) will work all right if sections weigh alike; but if there's a difference of several ounces between the heaviest and lightest, won't the last go a little slow? [Mr. S. A. Niver, who is an advocate of selling honey by the piece, grades his honey, if I am not mistaken, both by appearance and weight. I think that he told me he could gauge his honey to the half-ounce by merely picking it up and looking at it and setting it in its proper grade. That takes practice. When honey is sold by the piece, every section box is very nearly an average of every other one in that same case; if it is not, then the customer will soon demand to buy by weight. I do not remember whether Mr. Niver is the one or not; but some one has cases of full-weight fancies and light weight; also full cases of full weight No. 1 and light weight No. 1, and so on. The light weights are sold to one set of customers, and the heavy weights to another.—ED.]

Rambler springs a tough conundrum in *Review*. Why is it that, when you're at work near the apiary, only two or three bees will persistently pester you when there might as well be a thousand? I don't know. But when he says, "If you knock all of them down it will not take five minutes for their places to be filled by another two or three," I demur. We eat our dinner under a certain tree in the Hastings apiary, and when we've batted the two to six scolding bees, the *rule* is that we can eat our dinners in peace. [With me it has worked both ways. Sometimes after killing off the two or three that seem to delight in making one crosseyed, that has ended all further annoyance. Then at other times it has seemed as if every time I struck one, another would take its place—if not at once, shortly after. As a general rule I find it pays, however, to kill off these teasers; for when they once get into this habit of following one about the yard, those very same bees, if not killed, will keep it up for days. I remember quite distinctly one of these bees that had defective wings. Its hum was quite characteristic; and after two or three days of real annoyance I remember saying, "There comes back that little rascal again. I will fix him." I did fix him, and straightway that peculiar hum or whirr stopped. You see it was more natural to say I would "fix him" than to "fix it" or "fix her."—Ed]

PICKINGS

FROM OUR NEIGHBOR'S FIELDS.

By "Stenog."

"The March winds roar around our door,"
The bees say, quite demure;
"It shakes my *frame*," says one scared drone,
"Yet our *foundation's* sure."

* * *

AMERICAN BEE JOURNAL.

The first and second items on the second column of page 168, previous issue, should have been credited to the *Amer. Bee Journal* and not to the *Bee-keepers' Review*.

* * *

Mr. McNay says bee-keepers should demand an advance on honey sent to commission men, otherwise the honey will usually be put in the back part of the warehouse, and will be the last to be sold.

* * *

In speaking of the relative qualities of honey gathered by blacks and Italians, Mr. Edward Bevins, of Iowa, says he does not "question the fact of the better taste of the product of Italian bees. . . But that this superiority is present at all times and under all circumstances may well be questioned."

* * *

C. P. Dadant thinks it beneficial to let bees fly out on warm days, to avoid constipation. He does not favor excessive ventilation of hives, such as results from having the bottom of the hive removed; says it is like sleeping in a room with the window open in the winter. Probably "locality" will cut quite a figure in this matter.

* * *

In the issue for March 2 Mr. J. H. Martin furnishes a full description, with illustrations, of the California blue-gum and red-gum trees of that State. The blue gum (eucalyptus) is called the giant honey-producer. Mr. Martin says he has not seen a larger tree in America that secretes honey. Mr. M. has known the blue gum to bloom continuously from December till May and June. The honey from it is very dark, and aromatic in flavor. The tree grows very fast.

* * *

Mr. William Stolley, of Nebraska, gives a remarkably interesting talk on sweet clover—how to raise it, use it, and control its growth. Among many good points he makes I note the following: "In Nebraska it will furnish most excellent bee-pasture up to the time when frost kills all vegetation, and sweet clover is the very last to succumb. For early spring pasturing of cattle, particularly milch cows, there is nothing better than sweet clover." "It runs out all noxious weeds, perfumes the air, and feeds the bees." "A public road, well and evenly seeded with melilot, but the growth of it properly checked at the proper time, is a thing of great beauty, and there is nothing bad about it, but, instead, it furnishes a bee-ranch hard to beat." Mr. Stolley admits, however, that it is objectionable on original prairie-grass land which is to be utilized as hay land. It would be a good thing if the whole article could be printed in every agricultural paper in the country.

* * *

O. O. Poppleton speaks of the insect pests of Cuba. It makes us doubt what the poet said of these tropical countries—

"——every prospect pleases,
And naught but man is vile."

One of the "vile" things they have there is the mosquito; but these insects are not so bad as in Florida, are easily scared away, and can be kept away at night by the use of screens. The flea is to be found in Cuba in all his glory. Mr. P. says: "The more we kept away from any place where any kind of animal was kept, the less we were troubled with them." Then comes the chigoe, a black flea, so small as to be almost invisible. "These fellows burrow just under the skin, usually at the side of one of the toe-nails, and then proceed to grow into a bag full of eggs. I think that the abdomen of the insect itself distends as the eggs grow in size. The first that one knows of their presence is a peculiar itching, and an examination will show what looks like a white fester under the skin. A novice will open the supposed fester, squeeze out the eggs, and, if wise, drop in some kerosene to kill the insect and such eggs as will still remain. But the right thing to do is to take a pin, and, by being very careful, separate the entire egg-sac, without breaking it, from the flesh." Scorpions are plentiful in Cuba. Empty hives are a favorite place for them. Mr. P. says he has been stung by them only once. He thinks the sting is not much more severe than that of a bee. See Mr. Somerford's letter in another column.

* * *

AMERICAN BEE-KEEPER.

A Pennsylvania writer says not a honey-bee could be seen on a field of crimson clover of his last year, but it was alive with bumble-bees.

* * *

Seven views of comb built by Carniolan bees are given, from the Ontario Agricultural College, R. F. Holtermann experimentalist. They are built, apparently, in brood-combs, L. size, and are quite as irregular in outline as an ordinary washing hanging on the line. They resemble a lot of smaller combs joined together in a jumbled-up mess. The editor thinks the average Carniolan colony would be ashamed of them.

* * *

In regard to nectar secretion, Fr. Greiner maintains, with every show of reason, that the same honey-plants are differently affected by different climates and localities. He says the cherry blossoms as well in York State as anywhere, but his bees seldom if ever get any honey from it, while in Virginia the same kind of trees yield honey freely. In one of Rambler's letters he speaks of the cherry-trees of Oregon as being a great place for bee-men. I am confident that around here they are of no value for honey. Watch our Apr. 15th issue.

* * *

G. M. Doolittle goes over the subject of fruit-bloom fertilization in a very thorough manner. I think I have never before seen so much on that theme, within the same compass. It is a real mine of information. I have just read an article in a French bee-journal, however, saying that bees have nothing to do with fruit-fertilization. Perhaps not, at all times, on the principle, as the little boy said, that "salt is what makes potatoes taste bad when you don't put any on."

* * *

A fine view of the apiary of Mr. A. A. Goetting, of El Casco, Cal., is given; also a picture of Mr. G. himself. He tried Cyprians in California, but had to give them up, as their jokes were too pointed. To get rid of a laying worker he tells us to "carry the hive a short distance from the apiary. Place upon the stand an empty hive, and in it put a frame of brood and eggs from a good colony. Shake all the bees off from the combs; replace the combs in the new hive on the old stand, and it is done."

* * *

A. E. Manum continues his articles on the size of hives. He concludes as follows: "In a locality with a honey-flow of long duration, and the bees run wholly for comb honey, and by a person who can give them close attention at all seasons, and also where an increase is desired, I would favor the small hive. But if no increase is wanted, and the location gives but a short honey season, and the feeding is to be avoided, I would by all means favor the large hive." Mr. Manum's wide experience gives weight to what he says.

"HE."

BY EUGENE SECOR.

[*Note.*—See GLEANINGS for Feb. 1, pages 80, 81.]

We hear a good deal of talk nowadays
Concerning the sex that gathers our honey;
One man of letters writes, and boldy says,
That she's a *he* (now, doesn't that sound funny?);
That *he's* the one that works, and always pays
Our little bills when we're in need of money.
He cites a number of poets to show
That insects are called males, and *she* must go.

He says, and maintains, that if she's *not* he,
She ought to be *it* according to rules
Evolved and explained so plainly that we,
The laity, who, though innocent fools,
And Zaccheus-like (so curious to see),
May learn about "functions" outside of schools.
But he failed to explain why the functionless steer
Is known as a *male* every day in the year.

Of course, it's quite plain to most of us *men*
Why too much credit should never be given
To *female* importance; if it's *she*, why, then,
As sure as the stars adorn the blue heaven,
The woman will claim again and again
That *she's* the *factotum*, and not merely leaven.
It will never do to have it get out
That *females* are *workers* and bring things about.

When Nature exhibits some wonderful feat
Performed by what *we* style the weaker sex,
'Tis lucky to have an old bach to cheat
The dear woman out of th' possible reflex
By fooling the same in poetry sweet,
By argument too, and logic complex.
The *masculine* gender's the best every time,
Because it is found *quite often in rhyme.*

Of all the wild fads now running round loose,
The effort to make our speech very plain
Is faddest of all. A gander's a *goose;*
But why admit that? it's simply insane—
'Tis running our necks in a feminine noose,
So *gander's* the word that ought to remain,
Because, don't you see? some women will say,
"A goose ain't a gander, by a long way."

From this time on, then, *it* ought to be *he*
Whenever we speak of the miscalled neuter.
Let's keep the old ruts, and not bend the knee
To modern improvements, though it does seem cuter.
Young folks are too smart in this land of the free,
And get too far from the time-honored tutor.
Let's teach this doctrine wherever we can:
The old-time angel was *always a man.*

HE OR SHE.

Its Use in Different Languages.

BY F. GREINER.

It has been the custom of all the English-speaking people to give the worker-bee the masculine pronoun *he*. I am not very certain that there has been any particular reason for this. No language, that I have gotten a slight inkling of, seems to be very consistent in conceding any particular gender to the things of this earth. How, for instance, may we account for using the masculine pronoun *he* when speaking of the sun, but the feminine, *she*, when speaking of the moon, especially when considering that the German has it right the opposite, while the other languages, again, like Latin, French, and Greek, have it the same as the English?

How can we account for it, that in the German we give the drone the pronoun *she*, but not so in the English? to the worker-bee the feminine *she*, yet not so in the English? Nearly all of us remember when the queen used to be called "king;" among the Germans, *Koenig* [king], and *Weiser* (*l*) [leader], with, of course, the masculine gender. This older usage, though, has substantially gone out of practice in a measure, so to speak, as the people have gained in knowledge.

The explanation of why there are so many inconsistencies in our languages lies, it seems to me, right here. Languages were made up greatly by ignorant, uneducated people. Language was first, then education. Can it then be wondered at that so many of these inconsistencies crept in — inconsistencies that now cause the student so much hard study? It seems to me that it is only a move in the right direction when we now try to rectify some of the greatest inconsistencies and blunders, wherever it may be done without much inconvenience.

I certainly was greatly pleased when the editor of GLEANINGS first started the reform in our bee-literature by giving the worker the feminine gender, to which it is rightfully entitled. As a German I had been used to styling the worker as *she*, as mentioned before, and I could not become reconciled to giving it the masculine pronoun *he* when learning the English language.

Mr. Hasty, in the December *Bee-keepers' Review*, expresses his opinion in this matter. He thinks the effort in behalf of this reform is born by a spirit of conceit, we thinking of ourselves as possessing greater knowledge than the laity; and it is not impossible that this may be true.

Further on Mr. Hasty tries to represent the worker from the "absolute-fact standpoint," and says the worker-bee is anatomically a female, but functionally a neuter, and should properly carry the pronoun *it*, etc. I grant that the mission of the worker has thus been described, and is looked upon by almost all, even the scientists. But what are the facts in the case? What are the functions of the worker? A worker may lay eggs which may produce bees (male). Workers in a body may, by a sort of incubation, hatch eggs. Workers may secrete milk, so to speak, and are able to (one might say) suckle the young. The workers do not only secrete the milk, but milk themselves for the benefit of the young, if I may be allowed to express the process in these words. These are the most prominent faculties the workers possess.

No doubt Mr. Hasty considers the queen a perfect female. Indeed, the queen has become the proud owner of this distinguished title, "perfect female of the hive;" but is she justified in holding it? What qualities do we generally look for in a perfect female? Mr. Hasty is growing up a young bovine, a heifer calf, by the name of Dinah. The mother cow did not only give birth to this calf, but she provides for it proper food, and suckles it. So the here well-defined characteristics of this perfect female cow are, 1, to give birth; 2, to furnish food by secretion. The queen can well perform the first of the two; but further she can do nothing to keep her race from becoming extinct; the worker must come to the rescue; the worker performs the other half of the work of the true female. If I am not very much mistaken, then the worker has a right to the name "female," perhaps fully as much as the queen; but, as it appears, neither one is a perfect female; the two together make the ring complete; and since the one carries the pronoun *she* undisputedly, the other might as well. When the time comes that the relative missions of queen and worker are not only fully understood, but to each the credit given that to each belongs, then we shall hear no more of the queen being the only perfectly developed female, and the worker being neuter, but each will be addressed as it properly should — Mrs. Queen and Mrs. Worker.

Naples, N. Y., Jan. 3.

HE, SHE, OR IT.

A Little Advice to the Editor.

They are having a good deal of discussion in GLEANINGS about the proper pronoun to use in connection with a worker-bee, and the editor says in a note that he has associated with *he* smartness and wickedness, and with *she* softness and goodness. Here is just where the trouble lies. Man, the male, has always egotistically assumed that *he* was the superior of the rest of creation, women included, and the world has been run with the *he*, *he* idea uppermost, until *he* has left *she* out of almost every thing. This was especially true in Bible times. Did it ever occur to these male egotists that it is the female germ which is first in the order of creation? In nature it is the male cell that parts with its individuality when a new being is introduced into this time world. Whatever custom and tradition may say, "man is born of woman," according to nature, and this places woman first. Man smarter than a woman? Not much! We have seen women who could peel the bark off a hickory sapling, the equal of any male gender. Better continue to say *she*, young man, when you speak of a worker-bee; this is the age of "woman's rights," and you may wish you had if you do not. *She* is not so "soft and good" as she might be when you get her aroused; for illustration, a *she*, *it*, or *him*, which shall I say?—bee, a neuter, if you please. —*The Modern Farmer and Bee-keeper, by E. T. Abbott.*

TRAVEL-STAIN.

The Whole Question Reviewed and Restated; Getting the Game Holed, and then Digging it Out; a Valuable Article.

BY J. E. CRANE.

In GLEANINGS for Feb. 1 Dr. Miller says, "J. E. Crane's article, page 42, is entirely correct; but it only shifts the question one step farther back — is the black carried up from the brood-nest into the super caused by travel-stain, or what is it?" to which the editor adds, "I do not believe we can tell where the black does come from — perhaps sometimes from out of the hives; but I suppose that, in the majority of cases, it is chunks of propolis."

Now, then, let us see if we have got our game "holed," as the hunters say, before we proceed to dig it out. But first let us take a short lesson in colors.

I suppose we are all familiar with what is said of the diamond and lampblack—both the same chemically, yet one the purest white while the other is the purest black. Whence the difference? Just a little different arrangement of particles, we are told.

Take another illustration. The egg from which a honey-bee is hatched looks like a minute elongated pearl. With the heat of the hive it soon hatches, and is fed by nurse-bees a white substance like milk, and in a few days it becomes a large larva nearly white, when it is sealed up; and in a few days more, if we remove the cappings, we shall find a nearly mature bee almost as white as snow. A little later it may emerge from the cell as gray in color, and, after a few flights, its body is black, softened by a light-colored fuzz or numerous short hairs. Where did it get its color? Is it travel-stain? I think not.

I have introduced these illustrations to show how slight a change is required to change color, but hardly need them to prove the origin of the so-called "travel-stain," for the color is not black, but rather a reddish brown, or cinnamon, and evidently comes from some substance or substances of the same or similar color.

There are three or four sources from which it is derived, and it may be, in exceptional instances, more; viz., pollen, propolis, cocoons of young bees, and all of these mixed.

Pollen varies in color with the flowers from which it is gathered. It is often nearly white, and again a light yellow or dark yellow, or orange or pink, or red or brown, or it may be some shade of green.

What is propolis? I look in my Standard Dictionary and find that it is "bee-glue." Good! Some of us have been aware of that for some time. But what is bee-glue? It may be one of a dozen different things, or all combined, which the bees gather to stop up cracks and crevices, or smear or coat the inside of their hives, daub the inside of sections, or even the surplus combs or the brood-combs, or even for capping. This very afternoon a neighbor brought me some section honey to show me, and wondered if I could tell him what it was that made his combs look so colored, while the honey was white. I told him the combs were built late in the season, and propolis used in capping.

"Yes," he said, "they were built late;" and when I gave him a glass to look through he could see nothing but propolis to discolor his combs.

I believe all the coniferous trees furnish propolis in varying quantities and quality. I have found of late the butternut furnishes a good deal of a dark brown color. The northern poplars have long been noted for the production of this substance; but there is one variety, *Populus balsamifera*, that is the abomination of bee-keepers, so abundantly does it produce bee-glue. But bees gather it also from old bee-hives, or from slumgum that some careless neighbor has thrown out, or it may be from that thrown out of some hive by the bees, or perhaps they may get a full supply from the newly grafted orchard of my neighbor across the way, and be grafting wax with a little dirt. Now I believe we have ample evidence that our game is in its hole. Let us see if we can dig it out.

If we take a new colony with new combs we shall find the combs a pure white. The first intimation of color is in some cells partly filled with pollen. Later we shall find that every cell from which a young bee has emerged has lost its snowy whiteness. Indeed, we can tell every cell used for this purpose if even only one bee has hatched in it. The brown cocoon is left, and gives its color. Every succeeding bee that comes out leaves the cell darker until, in old combs, they look almost black.

But there are other processes going on that change slowly, perhaps, but surely, the color of the comb. Every cell in which pollen has been stored is likely to be changed in color, not the same as where brood was reared, but changed. The whiteness of virgin wax is gone, and in the place of it a dull yellow or brown. As honey becomes scarce the latter part of the season, and the bees cease to make wax, they will gather propolis and stick it about the mouth of cells, and perhaps give the lower edge of the comb a good coating of it also.

The following winter the bees gnaw down the combs more or less, and in spring gnaw out cells of pollen that may be coated with mold, or some of the combs that may also be colored with mold.

If the colony is strong, these chippings are picked up, mixed more or less, and used again to build comb or cap brood, and these processes go on year after year, producing accumulations after a time that are a surprise when one attempts to "make beeswax," and finds but little more wax, or at least is unable to separate little more, than he would from a wasp's nest, but in its place slumgum.

Now, that bees are capable of shifting these accumulations, or a part of them, with more or less wax from one part of the hive to another, or from the brood-chamber to the super, is evident if we take a comb from a populous hive with old combs, in spring, while honey is scarce, and replace with an empty frame. We shall soon have a new comb in the place of the one removed; but how different from one made of virgin wax! In color we are at once reminded of "travel-stain," for the color is almost identical with that of the so called travel-stain in boxes of surplus honey. It would be absurd to say that the bees had built this comb out of travel-stain, or even to suppose that they had built it of virgin wax, and changed its color so quickly by traveling over it, for the whole character and texture are different.

It seems evident that both pollen and propolis have become mixed with the wax and cocoons of old combs in a way to give them their dark color; and when wax is scarce they will be thinned down, and the extra used either in building new comb in the brood-chamber or when mingled with new wax used for finishing new combs in surplus boxes. Of course this is not always the case, for the color of the cappings may come from propolis alone, or, as is sometimes the case, from freshly gathered pollen.

It is not surprising that some should think it may come from the clustering of young bees on new comb, as suggested by Mr. Comeau, of Henryville, Quebec, as combs are likely to be stained most when young bees are hatching rapidly while but few larvæ are being sealed up; but this theory is contradicted by the fact that we often find our combs colored as fast as sealed — in fact, sealed with colored wax.

And now to recapitulate, I believe it may be safely stated:

1. That stained combs come sometimes, though rarely in this section, from pollen carried into the hives on the bodies of bees, which for some reason they have not made into pellets, as may be proved by examining the pollen and the stained combs.

2. By the use of freshly gathered propolis, or of minute particles of propolis gathered from the body of the hive or elsewhere, and mingled with cappings, and is very common, as may be proved by examining the cappings through a glass, or melting up a large quantity and observing the propolis that will separate.

3. The most frequent cause, perhaps, in this section, is the use, in capping of surplus combs, of impure wax from the brood-chamber, caused by the mingling with it of propolis, pollen, the cocoons of young bees, and, under some circumstances, it may be the excrements of worms or bees, or moldy combs, and often used first in the capping of brood, and, later, in the super.

[As this article is quite in line with the investigations of Cheshire, and quite agrees with some of the experiments of some of our best men, I think we may safely set it down that most of the propositions above elucidated are fairly well proven.—Ed.]

CUBA.

Its Drawbacks, Troubles, and Privations; Fevers; Wax-moth; Fleas; Reptiles, etc.; a Very Interesting and Readable Article.

BY W. W. SOMERFORD.

"As I am anxious to learn all about Cuba in the way of honey-production" is a fair sample of the letters that are dropping in from prominent bee-men. I now have two before me from Mr. F. Danzenbaker, of hive fame, and also 20 winters' experience in Florida, with bees and oranges; and for a practical questioner he minutely fills the bill, and especially asks for "drawbacks," troubles, and "privations."

1. Is there danger from banditti?

There is not at present any danger from banditti, and never has been, except for the *very* rich man; and as bee-keepers don't class that way down in my country, I think a person can, as a general rule, if he chooses, sleep with his doors and windows open, except during the rainy season; then it's best to keep them shut, to keep out dampness, the chief cause of sickness in Cuba, and the only drawback to the bees to keep them from booming the year round. The rainy season, though, lasts generally three months, and rain, some *raw*, does not skip a day, during the 90 days. Then the bee-keeper has his patience tried, for some of his bees won't work in the rain, *especially if black;* and if he does not feed starvation is the result, though I have never yet seen or heard of a hive of Italians starving in Cuba during the rainiest times—times when it rained so much and so incessantly that every thing was soaked with dampness, so that bound books, even, were coated over with green mold in a non-leaky house, while grass grew green and tassled on top of the house.

2. Malaria, fevers, etc.

Cuba is not a malarious country. Moss does not even grow there on trees, as it does here south with us; and the verdict of the American population who have remained in Cuba for years is that it is healthy. It can not be otherwise, swept as it is by sea breezes almost continually, being so narrow.

3. Wax-moths, etc.

They are plentiful the year round, but they give the modern bee-keeper no more trouble in Cuba than here south, except in comb honey, and that should be shipped north before March, as the crop is harvested by that time. The moths come in November, December, January, and February, December and January being the best months for honey.

4. How is honey kept from getting thin?

The extracted honey is nearly always sold in February or March, before rain sets in.

5. What kind of poisonous reptiles lurk around the apiary?

No reptiles in Cuba that are poisonous that I know of, except water-moccasins; but they lurk only around ponds, or in the creeks, so they never bother in an apiary.

6. Are fleas bad?

I never saw the like anywhere—thousands of them. I have known natives to sleep entirely *nude*, to keep from carrying fleas to bed with them.

7. How many kinds of fleas?

Only one kind—the numerous kind.

8. Can they be escaped?

I have tried, and seen others try to escape them. I have even tried diluted phenol or carbolic acid, but to no avail. They wouldn't stay off a fellow.

9. Any ticks, chigoes (jiggers), or bedbugs?

No ticks, no bedbugs—no beds for them to stay in; cots are in common use in place of beds; but jiggers are numerous in some places—the kind that burrow into one's feet around the toe-nails, and cripple them up, especially when socks are not worn (native style), or "sockless Jerry" style; no red bugs of the southern type, that crawl all over a fellow and set him afire.

10. How about sand-flies and gnats?

We don't have sand-flies in Cuba—no sand on the island; but gnats are innumerable.

11. Do mosquito-bats or dragon-flies prey on the bees in Cuba? They ruin them at Miami, Fla., and no way to avoid them.

There can not be any in Cuba, as I have never known them to do any damage to bees, nor have I ever heard any complaint of them; and as I knew of a bee-keeper in Cuba increasing from 25 to 500 in one season I presume bees are not at all preyed upon by insects other than ants. Little black ants are very numerous at times, especially during the rainy season, and often cause weak colonies or nuclei to swarm out, as at that time they are easily discouraged, and often come out, leaving brood in as many as three frames, and well supplied with honey.

I see an article on page 124, Feb. 15th GLEANINGS, saying that Japanese bees work in the rain, and it might be that they are the bees for Cuba, especially during the rainy season. I should like to try them, anyway; for with blacks or Italians it is almost absolutely necessary to have sheds for the bees in order to carry them nicely through the wet months. Dr. Vieta, of Cienfuegos, Fred Somerford, and Fred Craycraft, of Havana Province, three of the most experienced bee-men in Cuba, say that sheds more than pay for themselves; besides, oh how delightful it is handling bees under sheds, no matter if it is raining three times a day for three months at a time! If a chap keeps dry he will feel all right, and sheds made with pole framing, and covered with palm leaves, last for five or ten years; besides, they are very cheap.

12. Do grapes grow well in Cuba?

Grapes and figs do splendidly—seem to be entirely at home in Cuba; and oranges—oh my! how they grow without even a particle of fertilizing! and vegetables such as onions, cabbage, tomatoes, and turnips, astonish one in the way of attaining size without the soil being fertilized a particle. But the *comb* honey from Cuba will in the future be the astonishing feature to the bee-keeper is my prediction.

Navasota, Texas, Feb. 23.

[So Cuba, then, is not a malaria-infested country, as we had been led to believe, from the fact that so many of our soldiers sickened and died there; but the fact that some of the best of Uncle Sam's men died of fevers in northern camps of the United States goes to show that Cuba ought not to be misjudged by the experience of the army. The Queen of the Antilles perhaps, then, is not nearly as bad as the headings above would seem to indicate.

As this article has proved to be so interesting and valuable, I hope friend Danzenbaker will fire another set of questions at Mr. Somerford. We are all anxious to know about that bee country that may some day be a serious competitor to the bee-keeping interests of the United States. I suspect that most of us do not want to believe that Cuban honey can compete with American. But if it can, the sooner we *know* it the better for us.—ED.]

* * *

BEE-KEEPING IN CUBA.

A New Field for the American Bee-keeper.

BY A. W. OSBURN'S SON.

It is but natural that all eyes should be turned toward the recent fields of conquest. We are all on the alert for an opportunity to swell our pocket-books. Cuba is known to be a great honey-producing country, from our large reports in former years; hence the unusually large inquiry at present on the subject. No doubt the bee-keeping world has often wondered where the writer of former days, A. W. Osburn, had gone to. He has been called home by the Master, leaving a son and daughter to mourn his loss. Out of deference to an indulgent father we have been living a very secluded life for the last two years; but as time heals, in a measure, the deepest wounds, so it is healing ours slowly, and probably the bee-world from now on will read from time to time sketches from the same old pen, but used by a much less gifted hand.

The American people are subject to what we might call "ambitious finers." Moreover, it is of a peculiar kind that is very contagious. Some absent-minded one sniffs the air, then runs and tells his neighbor that he has smelled gold, and knows where it is to be found. Then his neighbor tells his wife, and that is all that is necessary. Within twenty-four hours the whole neighborhood knows it and is packing up ready to start for the new eldorado. The recent Klondike stampede affords a good example of what I refer to. Thousands have starved to death, thousands more have gone down to a premature grave, and rest upon the fleecy bosom of some far-off and unknown Klondike mountain. So, to avoid any thing of this kind, let the wise man think twice before he leaps across the stream and finds himself in a strange land which the devastating hand of war has tried to destroy; but the experienced resident knows that fire can go only surface deep. So it is with a view to shielding the bee-men, or at least those of them who expect to go to Cuba and pick up gold, that I have decided to write a little on the subject, hoping that, after they have read what I have to say on the subject, they will be able to decide which is best, for I shall set forth things just as they are, and not write for deception in order to further my interests.

First of all, the question is asked, Is there any money to be made by keeping bees in Cuba? I reply, yes, most assuredly there is—more, in fact, than in any other country I know of. Then, again, a thoughtless fellow asks, "Is it much work to manage bees there? I shouldn't think it would be, for you have no wintering to bother with." Well, I suppose he knows how many days there are in a year. If so, he knows just how many days' work he has got to do in a year in order to raise a *crop* of honey in Cuba. To all those who have the foolish idea in their heads that they can come to Cuba, and from 75 or 100 colonies take honey enough in a season or two to make them rich, I would say, drop that idea at once, and stay at home, for such will only be doomed to disappointment.

There is money to be made by raising honey here; but remember there is never a rose without a thorn. The larger the crop you raise, the more work you have. There is no season of rest for the bee-keeper in Cuba. The tropical sun shines and the flowers bloom the year round. Commencing with the first of March you have your young queens to raise as soon and as fast as you can. If your apiary contains 500 or 600 colonies, you have to raise 125 or 150 queens, get them to laying, and built up as soon as possible. By the first of May swarming is in full blast, and you will have no time to take a nap between swarms. Then between the first of May and the first of September the busy little moth will furnish you with ample employment, digging him loose from the corners of the hive and comb from Sept. 1 till Nov. 1, or sometimes the 10th. Feeding and preparing for the harvest will keep you on the jump till the first of April. Then you have got to step around as if you had coals of fire in your shoe; for when the weather is warm, and your 500 or 600 colonies get limbered up, if they are in ordinarily good trim they will bring honey in at the rate of from 2500 to 3000 lbs. a day; and if two men are going to handle this amount of honey every day for a month at a time they have got to get a move on them, and have a good backbone, especially if they throw it out by hand.

So the stranger can see by these few notes that there is no fun attached to bee-keeping in Cuba unless it is when he is making $125 a day as we did several times.

In my next letter I will describe some of the many drawbacks in Cuba; how to proceed to establish one of these large apiaries, and about what to expect the first year.

LATEST DEVELOPMENTS IN WEED FOUNDATION.

The R. L. Taylor Experiments; Wax in the Walls and Not in the Base, a Desideratum.

BY E. B. WEED.

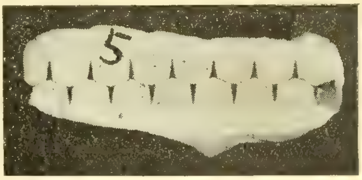
In the years 1893-'94 Hon. R. L. Taylor made some very interesting experiments with foundation, and published the results in the *Review* of December, 1893, and September and October, 1894. His object was to compare pressed (or Given) foundation, with a thin base and heavy wall, with the various other kinds then on the market.

The first year his experiments were conducted with sections of ordinary width; and although he found that the bees preferred some kinds of foundation to others, he also found that, after the preferred kinds had been drawn to about the thickness of a brood-comb, the bees then turned to the less acceptable foundation, and completed the sections filled with it about as soon as the others.

Mr. Taylor very ingeniously reasoned that if, in the next year's tests, he would use narrower sections, more decided results would be obtained, as the sections built on the preferred foundation would be better filled, and weigh more; so for his tests for 1894 he used sections measuring nine to the foot. This time the results obtained seemed quite decisive. In nearly every instance the Given foundation, weighing about 10 feet to the pound, with most of the wax in the walls, produced much heavier sections. For instance, tested with the Van Deusen, 14⅕ feet to the pound, an equal number of sections weighed 15¼ lbs. as against 9½ lbs. from the Van Deusen.

Mr. Taylor's conclusion was, "Heavy foundation has a decided advantage over light." He also made very careful measurements of the base of the combs built upon the different foundations, and found that, where the 10-ft. Given foundation had very thin bases, the base of the comb built from it was, in many instances, even lighter than natural comb, and very much lighter than any of the seven other kinds tested with it.* The cuts are reproductions of cross-sections of foundation, weighing respectively as many feet to the pound as the numbers indicate.

Figs. 5, 7, and 12 were made upon the same plates, with different thicknesses of sheeted wax. Of course, No. 5 required a heavy pressure to form it, while Nos. 7 and 12 required much less; and if there is any virtue in press-



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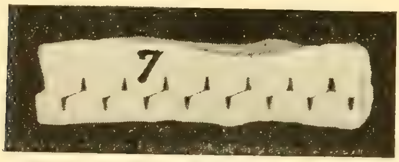
* See table on p. 295, *Bee-keepers' Review* for 1894.

ing wax lightly they should possess an advantage.



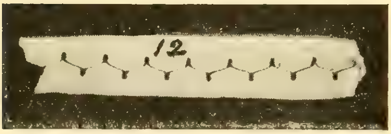
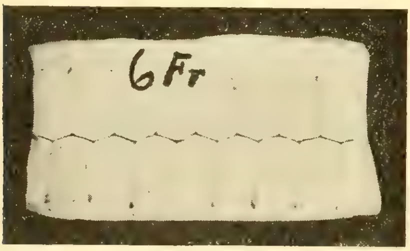


Fig. 6 is foundation from the same plates, 6 feet to the pound, and drawn out by the bees in January of this year.



The cut does not represent the walls fairly, as they are as light as any I have ever measured.

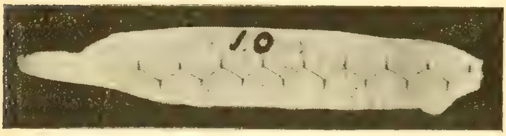
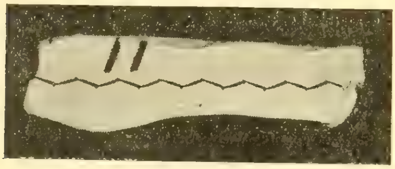


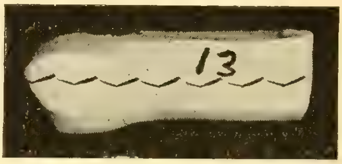
Fig. 10 is a poor illustration of the foundation we are now manufacturing.

Figs. 11 and 13 are regular light and extra light section, from The A. I. Root Co.'s stock.



I do not anticipate that, under *all* circumstances, this new foundation will give better results than the old style; but I am confident that it generally will.

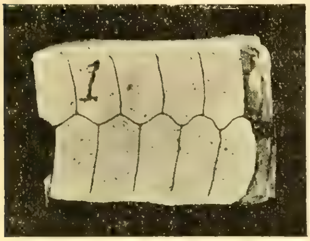
To sum the whole matter up, if the foundation generally in use is perfect, and leaves absolutely nothing to be desired, then the new product and machine have no excuse for being. On the other hand, if the ideal foundation is not yet upon the market, we now have a means of producing it; and no-wall foundation 20 feet to the pound, or a deep-cell foundation of any desired weight, are alike practicable I don't know "for sure" just what shape the ideal foundation will take; but when we agree on that point there is no question that it can be made.



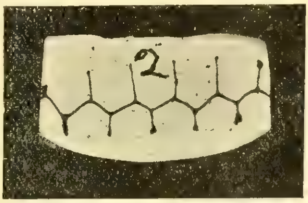
[I will explain that the plates above represent cross-sectional views taken from some of the latest samples of foundation made by Weed's new method, and from samples of ordinary foundation on the market. It would be impossible to cut cross-sections of wax without marring the edges. To prevent this, each piece is imbedded in plaster of Paris; then a razor-edged knife slices across the plaster, showing a perfect cross-section of the foundation, just as it leaves the plate. I know of no method that can show more exactly and more truthfully than this one the relative thicknesses of the bases and the walls of the various grades of foundation.

For some time—in fact, ever since Mr. Taylor, of the *Review*, gave the results of his experiments in 1893 and '4 — I have been strongly of the opinion that what was needed was *less* wax in the *base* of our foundation, and *more* in the *walls*. As desirable as this thing seemed to be, it did not seem to be possible with ordinary rolls to put some of the surplus wax from the bases into the walls; and Mr. Taylor's experiments years ago showed that an old Given press, imperfect as it was, would produce a thinner base than rolls. I believe rolls *can* be made to produce thin bases, but they have not hitherto been built. I will say in this connection that a much thinner base can be secured on rolls by using thinner sheeted wax. Mr. Weed was of the opinion that a more perfect foundation could be made with plates. Accordingly, with that theory in mind he has gone ahead and made several sets, all of which were discarded except two. These gave a foundation with a base as thin as the bees make it. I have thought it was thinner, but Mr. Weed says not. It is necessary to have a certain amount of wax to stimulate the bees to comb-building; and that wax, as will be seen by Figs. 5, 7, and 12, is placed in the *walls* and not in the *bases*. The spurs sticking up show sectional views of the walls.

Going on this theory we find that, in nearly every case covering a period of two or three years, this large amount of wax in the wall seems to be thinned down to the thickness of natural comb. No. 6 Fr. is comb built out from foundation made from plates; and before it was drawn out it looked very much like sample 7. The bees have apparently thickened the bases, because they were too thin at the start. Even now they are no thicker than those shown in 1 and 2, built wholly by the bees. They have made the walls so thin and gauze-like that they almost disappear. In fact, they can just be discerned.



This and former experiments show that we can stick as much wax as we like in the walls, for it will be thinned down; but we must be careful about getting too much in the bases; for while the bees *may* thin it there, they rarely do; and the excess of wax, therefore, in the bases, is simply so much waste product, and who pays for it? The bee-keeper and not the supply-dealer.



Probably the new foundation will not run, for the same superficial surface, any lighter than foundation commonly in use. It is found that, when foundation is too light, the bees either tear it down or else they are very slow to take hold of it. Although we have made extra-thin foundation for years, running about 12 or 13 feet to the pound, the bulk of the trade calls for ordinary thin, running 10 to 11 feet. A customer may order the extra-thin; but in nine cases out of ten, the following year he will order the next heavier grade; but, as I said, the ordinary 10 and 11 foot-to-the-pound surplus foundation now on the market has almost no wall, but a great surplus of wax in the base.

No. 11 is the ordinary thin super, running 11 feet to the pound; and No. 13, extra thin running 13 feet to the pound, and is like what is being turned out on rolls by foundation-makers, including ourselves. If these be drawn out into comb by the bees we shall have the same thick bases as there shown, without any apparent change. For instance, the samples shown in the accompanying figures 15 and 16 show first the foundation and then the comb after the bees have worked it out. It will be observed that in the above case the base is left almost untouched.

The second sample, and last one shown, is brood foundation worked out into comb, and regarding it the same rule holds true as in the case of that designed for the supers. We are indebted to the *Canadian Bee Journal* for these last two engravings. We have other cuts that show these things just as strongly, and personally I am thoroughly convinced that the foundation of the future should and will have thinner bases.

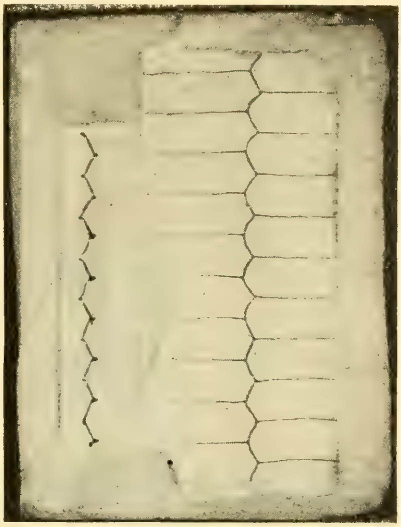


FIG. 15.

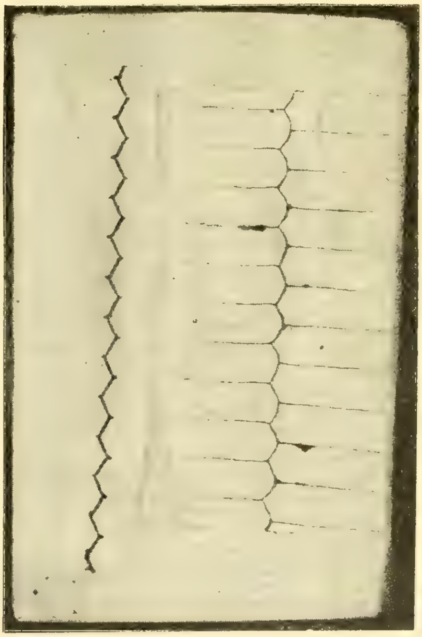


FIG. 16.

Mr. Weed has already made a set of small plates that make the right kind of foundation; and I also told him I thought he could make a set of *rolls* that would make the same article, or nearly that. He is skeptical about it, but

I insisted that he should try it, because there is so much to be gained in the economy of manufacture and consequent reduction in price to the bee-keeper, if rolls can be made to do the work.

As our readers will see, as per announcements elsewhere, we are prepared to furnish limited quantities of this new foundation, which we shall call "Weed's thin base." The sheets are cut and trimmed of a size to just fill a section 4¼; and the whole sheet, including the walls on both sides, is about ¼ inch thick. Sheets run 10 feet to the pound, and I confidently believe they will come the nearest to giving a "no-gob" foundation of any thing that was ever produced. I do not expect we shall be able to produce a better article than that made wholly by the bees; but if we can do as well we shall have reached our goal. In Figs. 1 and 2 I show you samples of natural-built combs, the bases of which you will see are about as heavy as that shown in Fig. 6.

* * *

TESTS OF FOUNDATION.

The Extra-thin Carries Off the Palm; an Interesting Series of Experiments.

BY JOHN M. MYERS.

[After I had prepared the matter above, the following came to hand.

The writer of it, instead of preferring ordinary thin, gives his preference to the extra-thin—not because bees take to it any better, but because it makes a better-eating comb honey. But his experiments show that the heavier grades of foundation are preferred by the bees. Now, then, *if* we can give them this same weight in a foundation that *will* give no gob in the comb honey, don't you see we work in harmony with both the bees and the eater?—Ed.]

I used medium brood Weed process in the brood-chamber, full sheets, frames wired. I used this year thin and extra thin full sheets and bottom starters in sections. The thin foundation gave combs solidly filled and firmly fastened to the wood all around, and would safely stand shipping around the world. There is more wax in the comb than can be eaten by an expert, and be relished with the honey, which fact condemns it for me and my direct customers.

The extra thin had a severe test, as I left the sections on, week after week, waiting for honey to flow from the abundant bloom of the summer blossoms. But no honey was secreted.

The bees, for pastime, gnawed the corners and trampled down the bottom starter, and, as I thought, made sad havoc with a foundation too delicate for such a season. In many sections the cells were drawn out as far as the little ridge of wax would go, and they were in that condition when at last honey began coming in late in August. Some colonies worked on extra-thin filled sections solid to the wood, with a pophole in one or two corners; but in many sections none at all were left.

One colony of three-banders, worked on a small top starter last year, worked combs fastened at the top only, having a bee-space on two sides and the bottom. This year the same colony had the same fault, and tried to accomplish the same result on full-sheets and bottom starter of extra thin. This queen loses her head in the spring.

I received a small consignment of the deep-cell natural-base drawn foundation and six pieces of double extra-thin, 2 inches by about 3⅞. I made up a super of thin, extra-thin, double extra-thin, and drawn or deep-cell foundation. I placed this super on a strong colony, and examined it every few days. It was late in June, and no honey was gathered until late in August. The bees filled the super with their own busy presence, and worked away at the various samples of assistance. The thin foundation was drawn out into neat shallow cells from top to bottom, and the top and bottom starters joined in many cases. The extra thin was eaten away at the corners, and the cells drawn a little, but not over the entire surface—mostly at or near the top. The double extra-thin foundation was much shorter, and rounded by the time honey came, but shallow cells were formed near the fastening. The cells of the drawn foundation were shortened back, and appeared to be of much the same depth as the cells on the thin or heaviest foundation. The double extra-thin and drawn had no bottom starters, while the thin and extra-thin had bottom starters of their own weight. Each section was marked, and they were mixed as much as possible. Honey started to flow about August 26. I did not note the progress of this super for four or five days; then I found the entire super nearly completed, and I placed another under it. The top one was finished complete, and the bottom one nearly finished, when the flow was over. I found, on examination, that if I had not marked the sections I could not have distinguished the thin and extra-thin by their appearance. The drawn and double extra-thin had the same fault as the lower half—ran into drone comb; but all were solid to the wood all around.

I found in the practical test on the table that the double extra thin was the nicest to eat. No center rib could be noticed in cutting through with a spoon, and honey and wax melted away in the mouth together. This was so of the upper third of the comb only. The two lower thirds, drone comb, was much like comb built on thin foundation. The drawn foundation was more delicate than drone comb—much like extra-thin. Extra-thin foundation could be eaten with pleasure, wax and all, and is so eaten by every one enjoying the hospitality of our table. The thin I can not enjoy, as I have to return cuds of wax to the plate or bone-dish.

Woodcliff, N. J., Nov. 26.

SWEET CLOVER.

Stick to sweet clover I have it growing on my farm. Cows eat it all right, so do sheep, and I kept my horses two weeks on it when mown and fed to them.

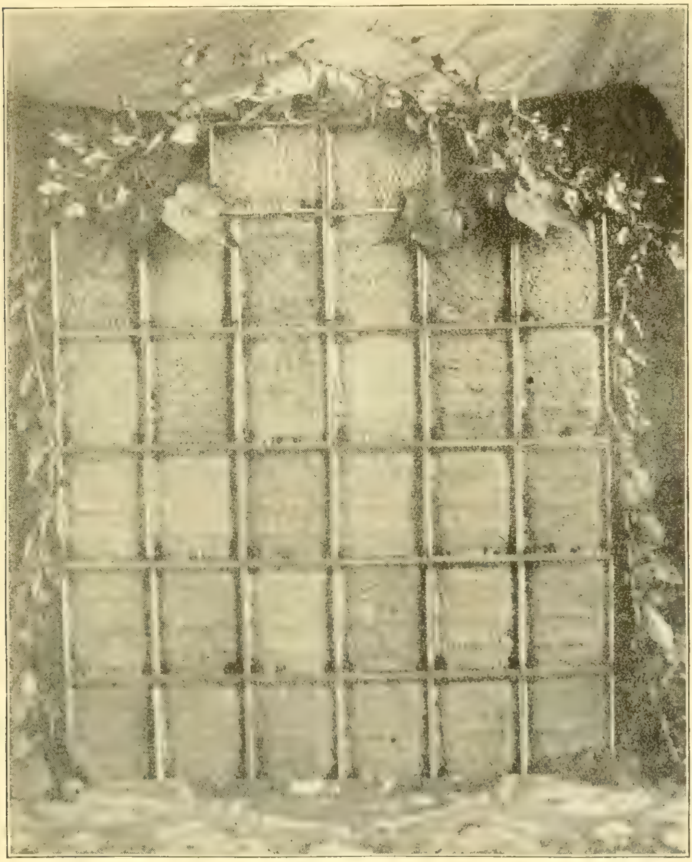
Arthur, Ill. J. T. Lee.

DANZENBAKER'S HONEY.

Was that Shown in the Journals Taken from Selected, or was it the Common Run?

BY F. DANZENBAKER.

Mr. Editor:—A prolific writer for the journals desires to know if the four plain 4x5 section of honey, Fig. 11, p. 920, GLEANINGS, Dec. 15, was raised by myself, or "selects," "from large lots of honey that I might have bought of others." For his information, as well as others', permit me to say they were not selected with a thought of your engraving them, as you know, but to demonstrate whether I could ship safely hundreds of miles by express from Hamilton, N. C., to Medina, O., half a dozen 4x5x1⅜-in. plain sections, in a Danz. shipping-case ⅛ in. thick weighing only 5 oz. The six sections were from the first super taken off. One-half of it was filled with Weed's drawn combs, the rest full sheets of foundation. I believe the four sections shown were the Weed drawn combs, as the bees started in them at once, and they were the first finished.



HONEY IN DANZENBAKER BEEWAY SECTIONS (OLD STYLE).

Mr. C. D. Duvall and myself were working together. We took off the first supers when partly finished, and divided them up to get bait combs for other supers. Finding 16 sections finished, fit to sell, in the first super, I sent six of them to you to show you the *defective* cells at the top of *all* the sections, *caused* by having the top slat of the 1898 fence $\frac{1}{16}$ in. *too high;* also that the cleats and openings between the slats *were correct*, and the fence was just right at the bottom, to have the sections evenly filled out all round to the wood.

In comparison with the four sections shown in Dec. 15th GLEANINGS, p. 920, Fig. 11, I submit a half-tone engraving from a photograph of 32 half-plain 4 x 5 x 7 to the foot Danz. sections, made at one time in a Danz. super (furnished with the 1897 N. fences), by W. W. Lathrop, of Bridgeport, Ct., who is an amateur bee-keeper, having bought his first bee-hive in 1897.

He says: "These 32 sections were put on the hive in September, and taken off October 2," and he "had 172 sections of fall honey, all of it just as good." He had only three colonies in the spring.

The entire 32 sections are filled alike at top and bottom, showing that the 1897 fence was the correct width, although irregular spacing from $\frac{3}{16}$ to ⅜ inch caused a slight ridging of a few of the sections. While the 1898 fences were better spaced, and show *no ridges* on the surface of the honey, the top of the fence was $\frac{1}{16}$ inch *too high*, causing a row of open cells at the top of the sections. Happily this can be remedied by dressing off a trifle at the top of those now in use.

These faults have been corrected in the M. fences for 1899, and we believe all that are now going out are as nearly perfect as it is possible to make them. But the bees will tell.

Washington, D. C.

[I am glad to corroborate Mr. Danzenbaker's statement. The honey he refers to, and which was shown in our Dec. 15th issue, page 920, was placed on that page without any comment by myself. It was put in as an after-thought, after the matter had been placed in type. When the honey was received in the first place, it came in the best of order; but it looked so nice that I had a photo of it taken, and this was half-toned, and the plate lay on my desk several months, perhaps, before it was used.

The honey here shown being made in old-style sections with old-style fences, some two years ago, does not show up as well as some of his later honey; and I would call attention to an obvious defect in it ; namely, ridging across its faces. The fences with which this honey was produced were old-style, and the first that Mr. Danzenbaker got out. The slats in these were spaced ⅜ inch apart. We did not then know, as we now do, that closer spacing from $\frac{2}{12}$ to $\frac{3}{16}$ avoids almost entirely this ridging. But we never made any fences for our own hives with spaces wider than $\frac{3}{16}$, and most of them were spaced closer.—ED.]

SPRAYING FRUIT-TREES; HOW AND WHEN.

Where to Get Necessary Information in Regard to Spraying; a Matter of Value to the Fruit-grower and Bee-keeper alike.

J. W. ROUSE.

We notice that Bro. M. N. Simon, of Ohio, has a letter, saying that "the fruit-growers near him spray their fruit trees while in bloom, thus destroying large numbers of his bees." We will say that the fruit-growers of his neighborhood very much need some missionary work among them for their own especial benfit as well as to help the bee-keepers. While we have no doubt that these fruit-growers are an intelligent people, yet spraying when fruit-trees are in bloom shows ignorance on this subject at least, as all well-informed horticulturists know that it does but very little good to spray while the bloom is out ; and to do so destroys large numbers of the fruit-grower's necessary helps to successful growing of fruit. It would be too much in one article to show the necessity of insects (and bees are the best of all of them) to the successful growing of fruit; but what we have to say will be on spraying.

It is fully recognized in Missouri and in the West—in fact, everywhere, so far as we know—that the time to spray must be determined by what the spraying is intended for. If for fungus, it should be done before the tree comes in bloom; and, in some instances, even before the buds get started much. For the codling moth the spraying should be done after the bloom has fallen, as the moth does not deposit her eggs until the fruit is set ; so to spray while the bloom is out would be too soon, and the work lost, besides poisoning the fruit-grower's helpers, the insects.

In the Missouri State Horticultural Society's report for 1893, 1895, and 1896, experiences are given as to when to spray; and in no instance is it advised to spray while bloom is out. The writer had the honor of offering a resolution at the meeting of the society at Marciline, Mo., in 1896, being there by request of the secretary to give a lecture on bee-keeping in relation to horticulture. The resolution was: "*Resolved,* That this society strongly advises fruit-growers, in spraying fruit-trees with poisonous insecticides, not to do so while the trees are in bloom, for the reason that at that time it practically does no good, but may be the cause of destroying, by poisoning, large numbers of our helpers in fruit-growing, particularly the honey-bees." This was unanimously adopted. Our horticulturists (many of whom are bee-keepers), recognizing the importance of bees in the successful growing of fruit, have cordial feelings toward bee-keepers; and for the past several years, in almost every one of their annual meetings, they have had either a paper or a bee-keeper to make a talk on bee-keeping. We would advise our readers who may be interested, to send their address to Cornell University, Ithaca, N. Y., and get Bulletin No. 101, entitled "The Spraying of Trees;" also Bulletin No. 86, "Spraying of Orchards;" and to U. S. Department of Agriculture, Washington, D. C., Farmers' Bulletin No. 7, "Spraying Fruits." These are all free. The best of all, that will give the most information as to when to spray and how many times is the Spray Calendar, by E. G. Godeman, issued in Feb., 1895, by Cornell University Agricultural Station. I. P. Roberts is the director. This calendar tells when to spray and what with; and in a long list, in every instance, either before or after the bloom has fallen. If any one wants to spray he should have these bulletins, especially the calendar, as we deem them of much value, being given from practical experience and experiments. We will not give any formulas, as that is another question.

Mexico, Mo.

FOUL BROOD GERMS.

May not Honey Boil in Separate Strata ?

BY J. H. MARTIN.

Mr. Editor:—I am going to try to help you out on that proposition about boiling honey for the killing of foul-brood germs. You quote Messrs. Cowan, Taylor, and others as indorsing a ten-minutes' boil. On the other hand, Mr. Buchanan has made a failure at it, and would boil an hour or longer. Now, I can imagine that every one may be right. I will guarantee that Messrs. Cowan, Taylor, and others, boiled only a small amount as compared with Buchanan's 15 or 20 gallons.

Is it not a fact that liquids boil in successive strata? For instance, if there is a small amount of liquid in the bottom of a boiler it will all be thoroughly boiled in a few minutes ; but fill the boiler with several gallons, and though it may seem to be boiling furiously there are successive strata, from the hottest at the bottom to the coolest at the top; and while foul-brood germs would be killed in the bottom stratum they would be alive in the upper stratum. It is the hot-air bubbles continuously rising to the surface that eventually give the whole mass of liquid a uniform temperature. A large amount needs longer boiling; and where Mr. Buchanan made a mistake was in treating his many gallons as other parties had treated a gallon or less. I am sure that, if the proper temperature is gained in ten minutes, the germs will be killed; but to be on the safe side, boil a gallon in a large boiler ten minutes, twenty gallons an hour, fifty gallons three hours.

In the long broad shallow pan used for the evaporation of maple syrup we have an illustration of this law. There are fewer strata to heat than in a deep boiler, and the evaporation is more rapid. If foul-broody honey could be boiled in such a pan it would require no three hours to kill the germs.

Shermanton, Cal.

* * *

FOUL-BROOD GERMS.

What do we Mean by "Boiling"? Scientific Exactness.

BY PROF. C. F. HODGE.

Since foul brood has occurred in Worcester, I have naturally been interested in discussions of the subject that have appeared in GLEANINGS. In trying to make definite statements on such important matters, should we not be a little more exact about our fundamental facts? First: What is meant by "boiling"? If by "boiling" we mean putting any shaped vessel on any kind of fire and have it show a little ebolition in a certain spot for fifteen minutes, then surely "boiling for fifteen or forty-five minutes" may be insufficient to kill the germs. Stir such a vessel gently but thoroughly, and note how long it is before it begins to boil again. Where thorough boiling must be insured we must either stir the liquid continuously to heat all parts uniformly, or heat equally from all sides, as is done in steam sterilizers. "Dead spots," which have not been heated up to 212, may remain very much alive as to germs, and reinfect the whole mass. Of course, allowance must also be made for altitude above sea-level. This makes several degrees difference whether you boil on the coast or in the mountains; and these differences, when it comes to killing microbes, are apt to prove like the proverbial "inches" added to or subtracted from a man's nose.

A second fundamental is the condition of your bacilli when boiled. It is well known that, in the spore state, it is hard to kill many kinds of bacilli by boiling. It may be represented by the difference between killing a plant and a seed by boiling. The practice in laboratories is thus to boil, say, for fifteen minutes, twice or even three times on successive days. Boiling the first time kills all the growing bacilli, and starts the spores to sprouting. By the next day they have not had time to germinate and form spores again, so that the second boiling kills every thing that has started, generally every thing in the liquid. But since some of the spores are slower than others in germinating, and to make assurance doubly sure, it is the common practice in bacteriological laboratories to boil for a few minutes on three successive days. Since *Bacillus alvei* does form spores, the most rigorous treatment should be adopted; and until the resistance to boiling of the spores of *Bacillus alvei* has been more accurately determined than at present, I would not risk any thing short of boiling for fifteen minutes, with thorough stirring, on three successive days.

I should like to know where foul brood comes from, apart from infected hives. Is there not some *wild* insect or plant source?

Worcester, Mass., Jan. 27.

[Both of these communications—the one by J. H. Martin and the other by Prof. Hodge—go to show how a few minutes' boiling might not kill the spores of foul brood. It is well known that, when thicker liquids are boiled, the ebullition is apt to be confined to some particular spot; and to keep it from burning, frequent stirring is necessary. I well remember how my grandfather used to boil down sap into maple syrup, and how it used to be my job to stand with a stick and stir, and keep stirring, so the syrup would not burn.

I have just been consulting an article by Thos. Wm. Cowan, who, in speaking of spores, says:

> The spores also possess the power of enduring adverse influences of various kinds without injury to their vitality, so far as germinating is concerned, even if subjected to influences fatal to bacilli themselves. The latter are destroyed at the temperature of boiling water, while the spore apparently suffers no damage at that temperature.

This is quite in line with what is said by Prof. Hodge above. Mr. Taylor, it seems to me, does not consider that to kill *spores* is much more difficult than to kill the actual growing germ life itself. As long as there is room for doubt, one takes upon himself a grave responsibility when he says that a few minutes' boiling of infected honey is sufficient to sterilize it; and I have shown elsewhere that the boiling-point of honey is not so very much higher than that of water. Until we *know* more about the question of resistance of spores to acids or to heat, I for one will not recommend any one to boil honey less than three hours.—ED.]

* * *

BACILLUS ALVEI.

Bad Advice; the Importance of Making Sure Whether One has Foul Brood or Not.

BY W. A. H. GILSTRAP.

In 1897 my attention was called to an apiary near Fresno, which was diseased. The owner of the bees, Mr. Andrew Jackson, said it was what Root's A B C book calls foul brood, although Prof. ———, one of the leading entomologists of the country, had said that it was not foul brood; and Mr. ———, one of the recognized authorities on bees in this valley, had told Mr. Jackson that "bees run to extracted honey in this warm climate will get well of foul brood of their own accord." This is the way it looked June 1st.

A lot of empty hives in the honey-house looked as if they had seen service, and I asked Mr. Jackson about them.

"Oh, yes! these all had bees in when this foul brood made its appearance. Had I known what was the matter at first I should have had 300 colonies by this time."

"You had about 85 colonies, didn't you?"

"Yes; about 100 at one time."

"When did you discover they had foul brood?"

"In 1893 I saw there was something wrong. Prof. ——— said it was not foul brood. Then Mr. ——— said foul brood could not live in this climate when the honey is extracted, so I was ruined before I knew the real cause. Let's go out to the apiary."

The first hive opened had a dark-brown sediment deposited on the alighting-board. The bees seemed to have suffered greater mortality than the brood. The few remaining bees seemed to be in fair spirits. Eggs were being laid in very irregular order. Perhaps one-tenth of the brood had pin-holes, sometimes near the center of the cell, and sometimes near the edge, of various forms and sizes; but the term pin-hole would describe them as well as any name, perhaps. The contents ranged from yellow to black, and had the usual ropy consistency. A few cells had fine coffee-grounds (spores). Some cells in all stages were without perforations.

Of the 31 colonies there, 17 were condemned early in August by the newly appointed Inspector of apiaries. Late in September the bees were in about the same condition, apparently, except that fewer diseased larvæ were visible. Perhaps it was because the malady was generally in the spore state, and the spores were covered with honey.

So much blundering, and more that I might mention, has convinced me that, to *know* of the presence of foul brood, it is far safer to see the offending organisms with a microscope. I am convinced that, in our dry climate, the odor is not nearly so pronounced as elsewhere.

How many times must a glass magnify to reveal *Bacillus alvei?* In reply to the above, a celebrated scientist and apiarist said a one-fourth objective would do if the brood was stained. Having something definite, my next move was to ask an enterprising optician the price of such an instrument. He explained that an objective was part of a microscope, as tugs are of harness; but he could not tell me what was needed, and referred me to a local scientist with a $2000 library, who referred me back to the optician.

Mr. Cowan could certainly tell; but I would about as soon go to bed without supper as to ask him. Cheshire discovered the spores with a 500-diameter magnifier; but the catalogs don't say how many times their glasses magnify. The Rootville folks certainly "don't know" or they would say so in their catalog, giving price and general description, otherwise I would ask them.

Many people still believe that a dry climate and honey-extractor are the only medicines needed to cure *Bacillus alvei.* Mr. Jackson is not in that list. As the disorder is not stamped out yet, some others may take his view.

Grayson, Cal., Jan. 11.

[I wish you had told the name of the professor who gave that bad advice. As it now stands, one would infer that it is our own Prof. Cook, and I can not believe that he would be so careless or so mistaken as to say that one did not have foul brood in his apiary when he did. My advice, when samples have been submitted to me, has been this: If I am doubtful, I recommend treatment for foul brood just the same as if I were sure it was the real disease.

I can not think it is necessary to have a microscope to determine whether one has foul brood or not. A person who is inexperienced in handling such an instrument would be more likely to make an incorrect diagnosis than if he trusted to his simple unaided eye or nose.

With regard to microscopes, I might say that I am not without some experience. I used one so much that I fear that is one reason why I have to wear glasses now. In fact, I spent so much time with my microscope that I almost neglected my regular school studies; but at that time the appearance of foul brood was hardly known under the microscope; and although I have since seen it, I would not, with all the experience I have had, be prepared to say that I could surely identify it if I saw it under the field of the objective.

Speaking about microscopes, one can hardly get a good one short of forty or fifty dollars —one that would be suitable for looking at foul-brood germs. I have the impression that a ¼ objective may be used, but a $\frac{1}{12}$ lens I think would be better. A good objective might cost $25 or $30; and from that on one can go as high as he has a mind to pay. Unless one has spent years in the study of the minute forms of life, he had better let the microscope alone. But let me tell you I never enjoyed any study more than that of microscopy.—Ed.]

RAMBLE 163.

Two is Company, Three is None; How Bill Greene was Quite Undone.

BY RAMBLER.

As I wheeled along to Medford I was favorably impressed with this portion of Oregon. It is a fine dairy country. The well-built nicely painted farmhouses, the large barns, the contour of the country, and the herds of dairy cattle feeding on a thousand hills, reminded me strongly of my native New York State. If we could drop a portion of this (Jackson) county down in a dairy section in New York, and remove a like chunk from New York for the time being, the people would hardly know the difference. It seemed to me that the people were committing a very unreasonable and wicked thing to complain as they did of hard times. While in Southern California the dry season had all things in its grip, and there was some reason for complaint, here there was plenty of moisture and prosperity, the people were well clothed, appeared cheerful, and were happily going to and returning from town in their fine chaises.

Along with the occasional vehicle I met what appeared in the distance to be an emigrant wagon, or one of those large wagons with a white canvas cover, or what used to be white, for its pristine whiteness was now grimed with the dust of much travel. While I was not giving much attention to it, but more anxious to guide my own vehicle past it in the sand, what was my astonishment to have the occupant shout, "Hello there, Rambler!"

I dropped off my wheel as if I'd been shot. "Well, well! Bill Greene, as I live!" I exclaimed; "where in under the sun have you been? How did you get here, any way?"

"Why, don't you see? Two good cayuses and a wagon. You see I am doing a little rambling as well as yourself."

Mr. Greene had formerly been a bee-keeper in Southern California. Not being satisfied with that portion of the country he had been shifting from one locality to another; and, still evidently not satisfied, he was now on his way south to spend his winter in some portion of California.

Mr. Greene was a natural born trader, and had picked up quite a number of cases of honey somewhere in his travels, and was peddling it as he passed through the country, or, as he remarked, "supplying the home demand." When I first became acquainted with Mr. Greene he was a happy bachelor living in a tent not far from his apiary; and though he was always gentlemanly and respectful in language and demeanor toward the fair sex, he was so outspoken and firm respecting married life that I always considered him an out-and-out orthodox hard-shell bachelor.

"Well," said I, "Bill Greene, what a pity we are traveling in opposite directions. If we bachelors could travel together we might have more enjoyment out of the country."

"That is so," said he, in an abstracted way. "But, Rambler, you had better return with us." (When he said *us* I thought he meant himself and horses.)

"No, Bill, I can't do that. I am bound for Seattle."

"But, Mr. Rambler, you are going into a rainy country. I venture it is raining like fury there now."

"Can't help it, Bill; I'm going to Seattle, if it rains pitchforks."

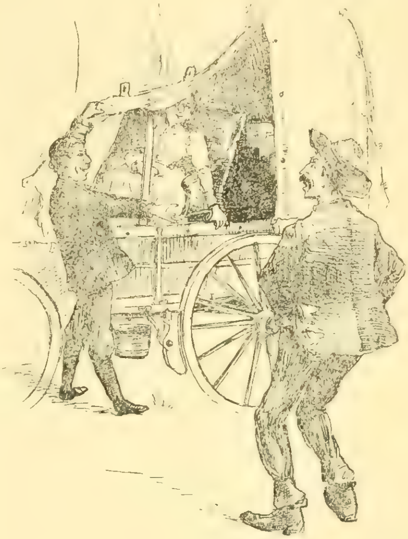
"But think of the mud, Mr. Rambler, and you with a wheel."

"Hang the mud, Bill; I'll go to Seattle if it is knee-deep."

"But think again, Mr. Rambler; you will have to pass through Portland, and the city is full of all sorts of unmarried ladies."

"My dear Bill, you worry me; but I'm going to Seattle, if I have to spoil ten miles of apron-strings. And now as you have been so kind as to warn me I will try to return the compliment. When you get to Klamathon you must beware of an unmarried woman there. She is a spiritualist, and is looking out for her affinity; and the trouble is, Bill, whenever a handsome man like you or me comes along she tries to bamboozle him into being her affinity. Now, Bill, don't you be bamboozled, don't get tangled up in apron-strings. You see, Bill, there is danger of getting unequally yoked, as the Bible says, and then it will be see-saw see-saw all the rest of your life, and you will be very unhappy."

While I was making these advisory remarks there was a little agitation behind that cover of the emigrant wagon. I looked inquiringly at Bill. "Got a dog?" said I.



"No dog; but the solid fact is, Mr. Rambler, I'm married."

"Great Scott!" said I; and before I could catch a second breath he turned back the wagon-cover, and, with hat off, a polite bow, and a blush, said, "Allow me to introduce you to my wife, Mrs. Bill Greene."

Somehow I didn't know just what to do, so I rammed my hands into my pockets, and again shouted, "Great Scott!"

Mrs. Greene didn't seem to be much impressed with my presence. I thought she looked a little sour. My well-meant advice to Bill didn't seem to fit her case, and I readily saw that I was in the disagreeable position where two is company and three a crowd. Bill and I made a few ineffectual efforts to continue the conversation. I looked him serenely in the eye, and said, "Captured?"

"Captured!" said he.

"Portland?" asked I.

"Portland," replied he.

I mounted my wheel; and as I glided away from that emigrant wagon I heard a feminine voice say, "Bill, that chap is just as liable to meet his Waterloo as you were."

As I journeyed along I moralized over the fact that man is of few days and full of trouble, and not the least of these is the danger of being captured.

My wheel fairly groaned under my kicks that afternoon, and I brought up in good order at Gold Hill, ahead of the train, and, wishing to make a big leap out of that country, I boarded the train for Roseburg, over 100 miles distant.

I was let loose in this town about midnight, and thought it would be the proper caper to stop over Sunday. I was fortunate again to stumble into a nice temperance hotel. It was not run on the alarm-clock plan, for there was a young man in the office ready to receive me. In the morning I learned that the proprietor had recently moved from a ranch to the hotel, and had kept bees in a humble way; but his knowledge of the industry embraced only two things — the hatred of stings and the love of honey. His helpmeet seemed to be better posted on the habits of the bee, but her knowledge in that line was not especially brilliant.

That Sunday morning we had hot cakes and honey. The latter was a mashed up mess, and looked as though comb honey dark with travel-stain had been run through a sausage-machine. I asked the lady if that was some of their own product.

"Oh, no!" said she; "that was brought in the other day from the town of Looking Glass, by Mr. Stricklan, one of our leading bee-keepers."

The lady gave me the names of several bee-keepers, but they were nearly all living out in other towns, some ten miles or more away. This would have been only a nice little turn on the wheel on Monday morning; but as luck would have it the rain commenced to fall early Sunday, and kept it up more or less all day. The roads were soon in good navigable shape for rubber boots; but, alas! it was good-by wheeling.

This storm disturbance disarranged my plans for side trips. It was my solemn intention, after viewing the Looking Glass country, and visiting Mr. Stricklan and his honey-pulverizer, to wheel down toward Coos Bay, in Coos County. Empire City, in this county, is a shipping-point for a considerable area of back country, and is recommended as a desirable country in which to locate apiaries. The county contains 1000 square miles, and about half of the area is still in timber; but that portion opened up to cultivation is of marvelous richness. It is a fine fruit and dairy country, and white clover grows here in profusion. The agricultural resources of the county not being fully developed, the bee-keeping business is in the same condition, and bees are kept in a small way, and as a side issue. Any person making a business of honey-production, and near enough to the coast to secure low transportation rates by water, would no doubt reap an abundant reward.

I find in all of this northern country an entirely different order of things from what it has been in Southern California. In the latter place honey-production is a profitable business in the absence of settlement and cultivation; in fact, the wilder the country the better the pasturage. In Oregon, settlement and cultivation have to precede honey-production. There are portions of Oregon where the forests of pine, cedar, and fir are so extensive and dense that the busy bee would scarcely find a drop of nectar. There are other portions where manzanita and other honey-producing shrubs and trees are abundant; but for a profitable venture in the honey business we must follow the civilizing plow and the dairy. Milk and honey must go hand in hand in Oregon, as in ancient times they did in the rich valleys of Palestine.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE.

RAPID INCREASE.

Question.—The present severe winter will likely deplete many apiaries in the country; and the problem which will confront many bee-keepers this spring will be, how to increase the few remaining colonies as rapidly as possible to the number usually kept. Will you kindly tell us, in GLEANINGS, how you would proceed where one has plenty of empty combs, some of which have honey in them, where an apiary has been reduced down to a few colonies? Will you also turn to page 140 of Feb. 15th GLEANINGS, and, after reading, tell us how the bees are made to remain with the two-frame nuclei, there described, when dividing a colony in that way?

Answer.—Years ago I would have given the plan given by the editor on page 140, as alluded to by the questioner; but the difficulty of making the bees stay where put was always a great drawback to the plan; hence I sought for another. I should like to have Editor Root tell us how *he* makes the bees stay; for with me, unless some precaution were used, all the bees but the very youngest fuzzy ones would go home, leaving the brood nearly destitute of bees, and thus a great loss of brood would result unless the bee-keeper was on hand promptly to return it back to where it came from. If any colony is made queenless long enough before division, so that the queen-cells are nearly "ripe" when the division is made, the bees will stay much better, as these cells answer to the mother-queen with such bees; and all but the older, or field-bees, will stay with the mother-queen when she is moved with the frames of brood. But even with ripe cells the most of the old bees will go back home, thus making the nucleus on the old stand three times too strong, while all the rest will be weak. Taking such two-frame nuclei into the cellar for 48 hours at division, and then setting them where they are to stand just at sundown, will help very much toward reconciling them to the new condition of things; or confining them to the hive on the stand they are to occupy the same length of time accomplishes the same thing. But in this case they wear themselves out very fast from their general restlessness, gnawing about the cracks of the hive to get out, etc.; and with either and all of such plans more or less of the bees will go home anyway, or they would persist in so doing with me. If one has an out-apiary three to five miles from home, then he can carry to and from, and do whatever he likes with bees, and they will stay where put, every time, when using any of the division plans. Now for the way I would and *do* work:

I first get out boxes of suitable sizes, according to the size of nuclei I wish, holding from one pound of bees up to six or eight, the latter being a very large swarm. For ordinary nuclei nothing is better than an ordinary 20-section shipping-case, nailed up and leaving off the side strips that hold the glass. On one side of it, where the glass would go, permanently nail on a piece of wire cloth, and for the other side nail a piece of wire cloth the same size as the first, to four strips of suitable length, so these strips surround the wire cloth as a slate-frame does a slate. Now with four small wire nails, one in the middle of each strip, tack this wire-cloth frame to the opposite side of the shipping case or box, when you have what I term a nucleus-box, one side of which can be readily removed at any time with a jack-knife by prying a little so as to loosen the nails. Or this movable side can be hinged on; but I prefer it as above, especially in getting the bees out.

Next get your tinsmith to make you a great big funnel, which should be 18 inches across the top, with the usual slope of side, coming down to a 2½-inch upright, or outlet, which should be about 2½ inches long. If this outlet is much less than 2½ inches in diameter the bees will clog, instead of readily passing down through, when a frame of bees is shaken into the funnel.

Having the funnel made, strike two opposite sides against something, or squeeze together till you have an oval funnel about a foot wide and 22 inches long, in the diameter of the two ways, across the top. This will collect your bees in better, when the frame is shaken, than it would if left in the ordinary funnel shape. Next bore a hole in the top of the nucleus-box which will just let the small or upright part of your funnel down into it, and fix a slide, button, or something of the kind, to cover this hole, when the bees are in and the funnel out. Beside this bore two or three one-inch holes through the top near either end, and with a proper-sized plunger push a suitable-sized piece of wire cloth down into the box so it will hang down inside of the box from two to four inches, when the wire cloth is tacked at the top to make it stationary. These places are for receiving Good or queen candy, granulated honey, or soft A sugar, with a little water poured on it, for feed, should the bees be kept long enough in the box at any time to require feeding; but as a rule I have feed in these places all the time, then I am always safe. This completes all the box part.

Now crowd the colonies you have left in the spring toward full colonies, just as fast as possible, using all the plans with which you are familiar, or given in the bee-books, for keeping them warm, stimulating, etc.; and as soon as any one of them gets strong enough prepare it for queen-rearing as I gave on pages 46 and 47, Jan. 15th GLEANINGS, and continue to raise queens from this colony as you may require, for you can do this and not hinder this colony from contributing its share of bees for increase, as well as the others, as the queen is laying all the time in it. As soon as any of the colonies are full of bees, so they can spare bees from two frames, or from half a pound to a pound, and you have ripe queen-cells, take the cells out and put them into the queen-nursery to hatch.

As soon as the queens are one or two days old, go to any hive which can spare bees, take out two frames, being *sure* the queen is not on either of them, and shake the bees from them down through the funnel into the box, doing this about 10 o'clock. Having the bees in the box, set it in the cellar, house, or shop, or in some shady place where outside bees can not get at the bees which are confined, leaving it thus till about 5 P. M. Now get one of the virgin queens, put her in a cage having a stopper in it filled with queen candy, so that it will take the bees about half a day to eat out the candy and liberate her. Pick up the box of bees and suddenly set it down, when all of the bees will fall to the bottom, when you will quickly open the funnel-hole, put in the queen-cage, and secure it about two inches from the top of the box by means of a wire clamped between the slide and the top of the box, in closing the hole again. Now set the box away in a shady place, leaving it till just at sundown of the following day, when you will find the bees all contented with their new queen, and hanging to the box like a swarm. Then go to any hive that can spare a frame having a small amount of brood in it, and get such a frame, shaking the bees off, and replacing with a frame of empty comb. Put this frame in a hive where you wish your colony to stand, together with a frame of honey, or enough in it to secure the bees from starvation, and two or three empty combs, placing the one having brood in it in the center. Now lower the box of bees down into the hive, near the outside comb, and with your knife pry the wire-cloth frame off enough so the bees can run out freely on the combs, when you will close it and adjust the entrance to suit the size of your little colony.

When you wish to make more little colonies, get your box, now free from bees, shut tight by driving up the nails, and proceed as before. A little later in the season you can form a little colony from each decent colony wintered over, twice every week, and take the same from your colony raising queen-cells too. Keep a good lookout for your combs, using those each time that may show any signs of moth-worms, and in this way you will not need to sulphur them if they are hung two inches apart so the light and air can freely penetrate between them. When the honey-harvest arrives keep plenty of combs on the strongest colonies so that plenty of stores can be stored in these for winter; and as the season advances, use more bees each time in making the colonies; and when fall arrives, if you do not have all the colonies you wish, and have plenty of sealed combs of honey for stores left, take bees from several hives, thus forming a strong colony at once, and hive them on these frames of sealed stores. I have so formed colonies in September, many times, and had them prove the best of any the next season. If you have some honey in your combs from which the bees died, and you are "sharp" in securing honey when the flow is on, you can increase 10 colonies in the spring to 100 in the fall, easily, by this plan, without any feeding or any outlay in cash for queens, feed, or any thing of the kind; and if the season is a really *good* one you can secure some surplus besides. The whole secret is in not commencing operations till the colonies are strong, nearly enough so to swarm, and then not robbing them of bees till they are too weak to work to the best advantage, using few bees for each little colony the fore part of June, and more and more as you go along, thus having all come up to full colonies in August and September.

I have had to be brief with this in order to get all in one article, but I think I have been sufficiently explicit so all can understand. If not, I am open for more questions at any time. Half a dozen nucleus-boxes and a funnel have become an absolute necessity with me in my apiary; for with them I can handle bees as I would potatoes, and make them stay where put every time.

[On reading the foregoing I am reminded that I left out a very important point; namely, that, when I practice dividing to form nuclei, I put into each nucleus more bees than they require, because I know that some of the old ones will go back home. The parent hive is sometimes robbed of all its bees. Those that return shortly, go back on to empty combs, after which they are given a comb of honey. By proceeding on this plan I never have any trouble but that bees enough will remain with the nucleus to take care of the brood. The Doolittle plan spoken of above will work, because I tried it when we were selling bees by the pound, and when we had the big funnel he speaks about, and cages prepared with food. But it seemed to me that at the time it involved a good deal of labor—much more than the one I practice.—Ed.]

HEADS OF GRAIN FROM DIFFERENT FIELDS.

APIS DORSATA IN THE PHILIPPINES; A CHANCE TO GET THEM TO THE UNITED STATES.

Dear Sir:—After reading the above address perhaps you are wondering who it is that is sending you a letter across 11,000 miles of ocean and land. Well, to explain who I am, and the object of this letter, I will say that my residence is in Dallas, Polk Co., Oregon, and at the breaking-out of the Spanish-American war I was a law student in the office of Daly & Hayter. For several years I have been a very enthusiastic student of bee culture; in fact, it has always been my pet hobby. I have read Gleanings and your A B C of Bee Culture. When the war against Spain was declared I enlisted with the 2d Reg. Oregon Vol. Infantry, and we came with the first expedition to the Philippines. Our regiment was the first to land on Philippine soil.

I have read of the "giant bees of India," and the unsuccessful attempts of Mr. Frank Benton to get them to the United States on account of the exposure to fever in the jungles of India. Well, I write you this letter to inform you that the largest species of *Apis dorsata* is in the Philippines. Their colonies are numerous in the mountains. They build a comb five or six feet long, four feet wide, and from ⅞ to 1½ inches in thickness. In appearance the giant bee is a smoky, glittering, irridescent, black, wasplike figure with orange bands encircling its body.

Now, what I want to do is to get some of these bees to the United States, either by sending queens or swarms. Knowing your long experience in shipping bees and queens, I write to you, asking for information in regard to sending them—the cages, etc. It takes from 20 to 30 days to make the trip from Manila to San Francisco; and as I have read of your sending queens to Australia I don't think we should experience much trouble in sending from here. I have talked with several natives, and they have agreed to bring the bees from the mountains to Manila, for a small amount. Will you kindly help me out by sending advice, cages, and instructions for using? In return I will send you several queens for your own use. John C. Uglow,

Manila, Philippine Is.

Co. M, 2d Reg. Oregon Vols.

[This is indeed "a streak of luck," as the boy said, that we have actually a modern bee-keeper within so easy access of *Apis dorsata*. We have sent him full instructions how to send them by express, requesting that he send them to Geo. W. Brodbeck, of Los Angeles, Cal. The latter gentleman is to forward the bees on to us after he has given them a cleansing flight and a "change of rations," but on no account is he to let the queens out. If our young soldier friend has not been shot down in the late battles we may expect shipments of *Apis dorsata* in the near future. Whether they will get through alive remains to be seen. We have offered him $25.00 for one queen alive; $35 00 for two; $45.00 for four, and $50.00 for five.

I have also heard from our missionary friend, Mr. W. E. Rambo, of Damoh, India, stating that he has got track of *Apis dorsata*. As soon as he can secure them he will prepare shipments and send them on.

It will be a joke if GLEANINGS gets ahead of the government in securing the big bees. At all events we propose to leave no stone unturned, and will get them if they can be secured. While I do not believe they will ever be of much value to us practically, yet we shall never know much about them unless we make the attempt.

If there are any others of our subscribers in India, Philippine Islands, or elsewhere, who will be in position to help secure for us *Apis dorsata*, we hereby give them notice that we will pay the above prices on the first shipment.

The daily press has given us enough free daily advertising of these big bees to create a large demand for them already. We are already getting calls. One man says he wants *Apis dorsata*—that he has not been able to get any honey with his common bees, and thinks it would be a good idea to "change my breed."—ED.]

THE RECENT FREEZE IN FLORIDA; ALSO SOME SUGGESTIONS IN REGARD TO PROTECTING FLORIDA STUFF.

The 13th of February Florida received a sad blow in the shape of a freeze. All tropical trees are killed as far south as Palm Beach, and badly injured in Miami. The orange, lemon, and grape fruit trees were very badly hurt as far south as Titusville, and injured more or less as far south as Palm Beach. My groves escaped with but little loss. A few of the orange-trees were in bud and bloom, and did not freeze so but I shall have a full crop of fruit. I banked with dirt about 400 of my youngest buds to save them, and had a few not banked killed. I have 15 acres out in grove, or 1500 trees, and the ground ready to set 500 more this season. My grape-fruit trees which you saw in 1895, Feb. 7, that were killed back to the trunk of the tree, averaged me $13 worth of fruit to the tree; and some that I budded at the ground in March, 1896, bore from $5.00 to $13.50 worth of fruit to each tree this year. This freeze has fixed the prices on good fruit for years to come. I had a good many tropical trees, but I think I shall have to leave these to Cuba and Porto Rico I had ½ acre of bananas under cover, with six inches of hay on top of the common cover, that were all frozen to the ground, and five acres of beans and five acres of Irish potatoes, some of them eight inches high. Tell A. I. they looked about like the little patch he saw at Weise's, Feb. 6, just before the freeze of 1895.

My bees are in good condition, but the recent cold will cut off some of the honey sources. I am running my bees in six different apiaries. I think people make a great mistake in having too many bees in one locality.

H. T. GIFFORD.

Vero, Fla., Feb. 23.

ZERO WEATHER IN FLORIDA.

Mr. Editor:—About a week ago I wanted to tell you (but being very busy failed to do it) how the bees were working in this part of Florida. They came sailing heavily laden, and dropping in front of their hives like shot. The titi, that grand source of honey in this locality, had commenced to bloom. On the night of the 8th of February the mercury fell to 24°, and on the 9th a shade lower. The orange-trees had blossom-buds, which were all turned black; also the new growth. There have been frequent rains since August, and, preceding the frost, many days of warm misty weather, which promoted vegetation.

Last Sunday, the 12th, there was a cold rain, followed by snow and sleet, and vegetation was coated with ice. The cold increased, and finally the thermometer indicated zero; the 13th, ten degrees above zero; the 14th, a little below freezing. To-day, the 15th, there is a cold rain with chilly wind.

Our rejoicing is turned into mourning as we view the wind scattering the bright green leaves of our orange and lemon trees which we have petted and caressed for many years. Our garden vegetables are destroyed.

MRS L. HARRISON.

St. Andrews Bay, Fla., Feb. 15.

BEES FLYING OUT OF THE HIVE IN ZERO WEATHER; WHAT CAUSES IT?

My father has three colonies of bees in box hives under a shed facing the southeast. Yesterday evening at 4 o'clock, temperature 4 degrees above zero, one of the colonies (a hybrid) commenced flying out as they would during a heavy flow of honey in mid-summer, going only a rod or so from the hive, until, overcome by the cold, they dropped dead in the snow near the hive. Some carried out dead bees from the hive, and were chilled before they could get back. About a quart perished before they quieted down. The other two colonies on the same bench were quiet.

Chapmans, O., Feb. 11. W. L. McGHEE.

[This is a rather hard question to answer. As it was a box hive, possibly a field-mouse, or even a rat, crawled up among the combs to get food and warmth; and if so, he would cause a general excitement among the bees. This would result in their flying out, perhaps, as they did. I could scarcely think that disease, or, more specifically, dysentery, would cause them to fly out in this way. In that case, the snow would be badly spotted around the hives. I have known mice to get into hives in winter time, and cause a general commotion. While the bees would be balled up in such a compact cluster as to make them almost insensible to *ordinary* disturbance, yet the *odor* of an animal crawling round their quarters seems to harrow them up far worse than opening up the hives. The alarm is given, and the bees rush out naturally to find the intruder.—Ed.]

CUBA, AND THE EXPENSE OF LIVING THERE.

I've been here but a short time, but I do not doubt that it is a good bee country; but there are other things to take into consideration, such as the difference in customs; the living expenses, the different values of money etc. Honey, they tell me, sells for half a dollar a gallon here; but a dollar of this money is only 60 cents in our money. Then the expense of living here is considerable. Meat is 30 to 40 cents per pound; milk 10 cents a quart; eggs, 5 cents each; kerosene oil, 50 cents a gallon; gasoline and alcohol about the same. This, in a country where it has to be used for fuel, is considerable. There is no wood about here. I have hard work to get enough to run a bee-smoker. C. F. Hochstein.

San Francisco de Paula,
Province of Havana, Cuba, Jan. 20.

A GOOD REPORT FROM CRAWFORD CO., PA.

Bees did well here last season; had the most honey for years, and of the best quality; little swarming, and went into winter in best of condition. Tell Mr. Dadant to hold his head up. I have three sizes of hives—one size very large—and my bees have always wintered best in the large hives, and made the most honey. Times here are good. We have had two of the best seasons here ever known; barns and cellars are fuller than ever before; every one who wants to work is at work; very few poor; no strikes; no tramps for the last two years. It looks as if our people were trying to do better, live better, and be better than ever before, and that their efforts were being rewarded from on high.

Steamburg, Pa. John Baldwin.

BEGINNERS' QUESTION-BOX

BY E. R. ROOT.

W. W., N. Y.—If your bees have plenty of stores I would not advise feeding as soon as they are put out on their summer stand. When settled warm weather comes on, feeding to stimulate brood-rearing may be practiced to advantage.

H. K. J., Ore.—You can begin to Italianize as soon as the bees begin to fly—the sooner the better. President Lincoln once said it is not wise to swap horses in the middle of the stream; so I would not advise Italianizing in the midst of the honey season. It should be done considerably before the honey-flow or after. In late summer or fall, queens are cheaper, and Italianizing can be done at less cost. Transferring should be done as early in the season as possible. We would usually say about the time of fruit-bloom.

C. E., Ark.—We know of no method of preventing honey from candying in barrels. The only thing to be done is to remove the top head, scoop out with a common spade into tin pails and liquefy it. This is a good deal of work, but is the only thing that can be done. When honey is put into square cans, as we recommend, the cans themselves can be placed on a coil of steam-pipes, or placed in a tub of hot water. This will restore the honey back to the liquid form.

W. L. C., Ky.—Propolis may come from various forms of plant life, because it varies in different localities. In one place it may be a transparent red and in another a muddy brown. The bees may gather propolis from the buds of the cotton-trees, and, where these kinds of trees are in abundance, may take it from them exclusively; but nearly all buds at certain seasons of the year have a certain amount of gum which may be utilized by bees, and the gum that exudes from the bark of certain trees may also be used at other seasons of the year.

W. F. B., N. Y.—There is nothing you can plant on as small an area as 50 feet square that would be in any real sense advantageous to the bees. Why, it takes almost a square mile of good clover-field to produce very much effect in an apiary. A single acre, or even a whole farm, of honey-plants would not keep more than ten colonies busy, if it did that. Years ago we had on our honey-farm something like five acres of honey-plants all told; but the bees in our general apiary robbed just the same, or wanted to, at least, when clover and basswood ceased to yield, thus showing that our special honey-farm was as a mere drop in the bucket.

R. L. M., Fla.—After queen-cells are made as described in Doolittle's book they must then be grafted—that is, be supplied with royal jelly and larvæ. Queens will not lay in them, and it is altogether improbable that bees would be so accommodating as to do the work for us. For further particulars see Doolittle's book. Sample foundation is too heavy. Your rolls should be screwed down tighter. Brood foundation should run from 6 to 7 feet to the pound, and surplus from 10 to 12; but on your mill you will probably not be able to get better than 9 or 10. It is desired to get the bases as thin as possible, being careful, of course, not to mash the faces of the rolls.

B. M. W., N. Y.—For reasons that I can not stop to enumerate, there are many objections to a house-apiary. If you have plenty of room in a yard, and are free from the depredations of thieves and meddlers, I would advise keeping the hives outside. It is pleasanter to work outdoors; and then in the winter, if the bees are put in chaff hives or in the cellar, there is much less danger of loss. No one has yet, so far as I know, ever succeeded in wintering successfully, year after year, in a house-apiary. There are many advantages, on the other hand, in having bees housed all the year round. For further particulars we would refer you to the A B C book, under the head of House-apiaries.

EDITORIAL
BY
E. R. ROOT

PERHAPS our readers have noticed that of late we have been bringing in short symposiums on some subject relating to bee-keeping. In this issue we have three different ones; namely, Cuba; proper pronoun to apply to bees; comb foundation.

IN our last issue I promised to give something more in regard to the matter of killing the germs of foul brood by boiling. A little symposium on this subject will be found on another page. I would call Mr. Taylor's attention especially to the article by Prof. Hodge.

SOME of our readers, I believe, will enjoy Stenog's usual introductory lines in Pickings. These are original, on the order of the burlesque, and were, he says, "written on the spot." I did not know before that he was a poet, or I should have had him "lining" before.

LATER reports seem to indicate that winter losses will be heavier this year than for the three or four years preceding, at least. Very few report more than 25 per cent loss. The principal losses this year will occur from bees wintered outdoors in single-walled hives. So far as I know, there has been very little mortality where bees have been put up as they should have been. Those in good dry frost-proof cellars, or in double-walled or chaff hives, are doing well everywhere, so far as I know.

THE editor of the *Review* has just gotten out a handsome prospectus entitled "Some of the Characteristics of the *Bee-keepers' Review;*" and in the line of fine-art printing it excels any thing that has heretofore been gotten out relating to bee culture. The *Review* is Hutchinson's baby, his only hobby, his specialty; indeed, his whole heart and soul are in it. He started with a little unpretentious paper, without any capital save the good will of bee-keepers, and now has a journal of which he may be proud.

IN the new magazine, entitled *What to Eat*, we find an article, "Honey as a Food," that is strangely familiar. It is none other than a liberal extract from Dr. Miller's honey-leaflet. This article appearing in a handsome magazine, and one that is undoubtedly authority on the subject of what to eat, will receive the recognition it deserves. I am glad that public sentiment is being awakened enough so that now there is actually a field for a magazine devoted exclusively to the subject of toods that are fit for human consumption.

PRESENT indications go to show that the last edition of 10,000 copies, making 62,000 sold, all told, of the A B C book, will be exhausted long before a new edition can be printed. We are running our $2500 press at its highest speed night and day, to print off some 200,000 catalogs, keep up our regular edition of GLEANINGS, of 10,000 copies, besides a multitude of little jobs. To print another edition of 5000 copies of our 400-page book, in addition to the above, means that our press has got to put in extra full time.

ON account of the great crowd on our columns, as spoken of elsewhere, I find it necessary to reject all articles bearing on the Dickel theory versus parthenogenesis. This subject is now occupying the attention of the foreign journals; and as there seems to be such a diversity of opinion among scientists I hardly think it will be profitable to take up space that we can devote to other matter that pertains more directly to the dollars-and-cents side of our pursuit. When the Dickel theory is settled, buried, or proven, *then* I think we can afford to give our readers the conclusion.

NOTWITHSTANDING we have been printing eight extra pages since Jan. 1, I find that I have a whole drawerful of excellent articles (sifted from a bushel more that have gone into the "waste-basket") that I should be glad to publish if I had room. Perhaps a little later I can find the space for them. For the present, at least, I should be glad if some of our correspondents would not shove their copy in quite so fast. In justice to the great mass of our readers I try to keep before me this one point; namely, to spread before them the very best I have; but very often I find that I am holding back matter just as good as I give to the public, for the reason that the line has to be drawn somewhere.

HONEY-LEAFLETS IN OTHER FORMS.

IN our last issue I referred to the suggestion of a correspondent, that the facts in the honey-leaflet should be put on a label, said label being large enough to go around the can. At that time I was not aware that any one had put the idea into practice; but I find that Mr. York, of the *Amer. Bee Journal*, has been doing this very thing. He sends me a sample of a very neat and pretty label designed, I judge, to go around tin cans. One portion of the label is devoted to the subject of honey as food; another sets forth the contents of the can, and the third and last portion has to do with honey-cooking recipes.

Mr. York also sends me his 1899 Honey Almanac, a booklet of 32 pages. Every alternate page is devoted to the calendar—the other pages being taken up with matter from the honey-leaflet by Dr. Miller. For further particulars apply to G. W. York & Co., 118 Michigan St., Chicago, Ill.

CHEAP VS. HIGH-PRICED QUEENS.

I HAVE just been wondering whether there would not be a call for $5.00 and $10.00 queens. Such queens should be tested, not only for purity of the bees, but for the even run of their queens. The bees of the queen as well as the bees of her daughters should be good workers. It may take a whole season to determine all this.

Mr. Alley once said he had a queen for which he would not take $100. He sent us one of her daughters, and later on desired to buy her back, as his $100 queen had died. Not then knowing her exceptional value we let her go; but I learned afterward that her daughters were all evenly marked, and produced bees of excellent working qualities.

But it strikes me that, if queen-breeders could find a demand for $5.00 and $10.00 queens, we might, among the whole of us, develop strains of bees that would be very much superior to the ordinary stock of queens selling for 75 cents, and even as low as 50 cents. While we ourselves have catered to this demand—never, however, selling as low as 50 cents—I am inclined to believe that, if all queen-breeders had striven for higher quality, and demanded higher prices, some bee-keepers, at least, would be able to get more money than they have been able to secure with these cheaper queens.

THOSE PLAIN SECTIONS AT TORONTO; HOLTERMANN'S REPLY.

WHEN any one has been criticised for his statements or course of action, in GLEANINGS, I believe in giving that one an opportunity to defend himself in his own words. Mr. Holtermann has sent in a reply, and this I cheerfully place before our readers:

> I am a little surprised at your letter in GLEANINGS in one paragraph. It says, "And what explanation is there for their being where they were privately seen (if I have the right idea) by Holtermann and others, and Holtermann, in the interests of fairness, didn't see that they *were* exhibited?"
>
> I certainly was a little surprised to see GLEANINGS, which, I understood, put up so high a standard, get down to publishing insinuations as per above, and allow a correspondent to do it without an attached signature. Mr. Taylor showed me, and probably others, the case *after* judging had been done. I did not see it before. The paragraph unsigned is not Mr. Taylor's writing, for he is too honorable to insinuate that I, out of personal interest, allowed the honey to be unjudged. Several, evidently, saw the honey afterward; did any of those think that, if it had been exhibited, it would have taken the prize for the best-filled sections? I think no one would think so for a moment. When you stated in GLEANINGS that I borrowed the cuts to illustrate the article written against plain sections, you prejudiced the public against my arguments, and no retraction on your part could undo the unwarranted injury you then did me. Was it prejudice or carelessness when you stated that I had borrowed these cuts? To me it matters not what kind of sections the public use; but I have tried to keep bee-keepers from going to new expenses with an article which they may discard or find of no added value. If better honey can be produced with the plain sections, let bee-keepers send them to the Toronto Exhibition this year. I have yet to see as perfect a comb or section with plain sections as we have taken with the ordinary section.
>
> I have nothing more to say in addition to what I have already said, only this: If plain sections have been better, then the plain-section men on one side of the line have been so modest that in no single instance have they sent them to the leading fairs; and if they are so modest they are a marked contrast to *some* of the advocates of plain sections on the other side.
>
> Brantford, Can., March 6. R. F. HOLTERMANN.

In reference to those electrotypes, I published my correction before I was solicited to do so by Mr. Holtermann, and in the very next issue. Was it carelessness? Yes, it was that and nothing else, and I am not ashamed to acknowledge it. If Mr. Holtermann were willing to do as much, he would leave a better impression.

Mr. Holtermann's last paragraph is either a little mixed or else I do not understand him. If I do interpret him, he has contradicted himself, for he says that in no single instance were they (plain sections) sent to the leading fairs in Canada, and yet in his two preceding issues he says they were sent to the Toronto, Ottawa, and London expositions.

I might and could answer several other points in the above; but if I did so, then Mr. H. would ask for more space. I prefer to let our readers, if they are interested, judge of the merits of the case, and there let it drop.

AMALGAMATION IN PROSPECT.

VERY recently some correspondence has been begun, looking to the amalgamation of the old and new Unions, or what will be, when the thing is accomplished, the United States Bee-keepers' Association. General Manager Secor, of the U. S. B. K. A., has taken the initiative, through the advice and suggestion of the directors, and I have just this day received a note from G. M. Doolittle, President of the old Union, that will explain itself.

> I note what is said relative to the uniting of the two bee-keepers' societies, on pages 188 and 189, of GLEANINGS, and I have this from General Manager Newman in reply to a letter of mine of recent date: "I note what you say about consolidation, and am quite willing that you should undertake the matter and work in your own way to bring it about. I am quite willing to *assist* in arranging *details*, as I always have been. No one will be more pleased to have the matter amicably adjusted, and the two organizations united for the purpose of doing effective work, than will I. I feel that, in leaving this matter in your hands, it will be properly done." As I am agreeable to the uniting of the two societies, and, so far as I know, all concerned are the same, it looks to me that this might be accomplished in the near future to the advantage of all. But I must be allowed to request as a favor that no extra burden be placed on my shoulders, for, through my sickness and broken bones, my work got behind so far that I am not nearly up with it yet, and I also feel that there are others more capable to deal with this matter than I am. But I will try to do all that is really necessary for me to do in the matter, as the oncoming future may point the way.
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> Borodino, N. Y., March 10. G. M. DOOLITTLE,
> President National Bee-keepers' Union.

With every one favorable to it, it looks now as if amalgamation might come very easily; and the only thing now remaining, is, probably, to bring about the actual thing itself in proper legal form.

VERY often I feel like saying a good word for something advertised in our journal; but there is just one thing I *won't* do; and that is, father *any* statement made by an advertiser regarding his own goods. When I know the value of a thing, then I am willing to say a word. But there are other meritorious articles of which I know nothing personally. For all such we are for the present willing to let each advertiser, if he likes, say a word outside of his advertising space; and with that end in view we are going to start another department which our advertisers, who use as much as $10.00 worth of space, may use occasionally. This space will be limited to a single column, and each advertiser will be limited to not more than 2 inches of that space, and for a while, at least, it will be given free.

"WHEN shall discussion be cut off?" is a question that is discussed in the *Review*, especially when it relates to something outside of bee-keeping. My plan is, not to allow any thing to go into the bee department that has any reference to politics and the great social problems of the day. Not that I am not interested in these questions, because I take periodicals that discuss them more thoroughly and fully than could possibly be done in a journal that is (or ought to be) devoted to something else.

THE MICHIGAN FOUL-BROOD LAW.

Friend Ernest:—I inclose you a copy of the foul-brood bill now before our State Legislature. Will you please give it space in next number of GLEANINGS, and urge every bee-keeper in Michigan to write without delay to his senator and representative in the State Legislature to favor its passage?

GEO. E. HILTON,
Pres. Mich. State Ass'n.
Fremont, Mich., Feb. 23.

SECTION 1. The people of the State of Michigan enact, that, upon the recommendation of a majority vote of the members of the Michigan State Bee-keepers' Association, the Governor shall appoint for a term of two years a State Inspector of Apiaries, who shall, if required, produce a certificate from the Governor that he has been so appointed.

DUTIES.

SEC. 2. The inspector shall, when notified, examine all reported apiaries, and all others in the same locality not reported, and ascertain whether or not the disease known as foul brood exists in such apiaries; and if satisfied of the existence of foul brood, he shall give the owners or caretakers of the diseased apiaries full instructions how to treat said cases, as in the inspector's judgment seems best.

DESTRUCTION OF BEES.

SEC. 3. The Inspector, who shall be the sole judge, shall visit all diseased apiaries a second time, and, if need be, burn all colonies of bees and combs that he may find not cured of foul brood.

VIOLATIONS.

SEC. 4. If the owner of a diseased apiary, honey, or appliances, shall sell, barter, or give away, any bees, honey, or appliances, or expose other bees to the danger of the disease, or refuse to allow said inspector to inspect such apiary, honey, or appliances, said owner shall, on conviction before a justice of the peace, be liable to a fine of not less than fifty dollars nor more than one hundred, or not less than one month's imprisonment in the county jail, nor more than two months' imprisonment.

ANNUAL REPORT.

SEC. 5. The inspector of apiaries shall make an annual report to the Governor of Michigan, giving the number of apiaries visited, the number of diseased apiaries found, and number of colonies treated, also the number of colonies destroyed by fire, and his expenses.

EXPENSES.

SEC. 6. There is hereby appropriated out of any moneys in the State Treasury, not otherwise appropriated, a sum not exceeding five hundred dollars per year, for the suppression of foul brood among bees in Michigan. Said inspector shall receive four dollars per day and traveling expenses, for the actual time served, which sum shall not exceed the moneys hereby appropriated, to be paid by the State Treasurer upon warrants drawn and approved by the Governor.

SEC. 7. This act shall take effect and be in force from and after its passage and publication.

SEC. 8. By this act all previous legislation on the subject of foul brood on the statutes of Michigan is hereby repealed.

While this is not the same as the excellent Wisconsin law, it contains the essential features of it; and those features are the appropriation of an amount of money, not exceeding $500, and the appointment of an inspector who shall receive $4.00 per day and traveling expenses. A law without these essential features is like the play of Hamlet with Hamlet left out. We hope every man in the State of Michigan will do his full duty; and those who can should go to Lansing and do a little talking privately with the senators and representatives.

THE BOILING-POINT OF HONEY—WHAT IS IT?

IN Straws, Dr. Miller refers to what Mr. Taylor says regarding the difference between the specific gravity of honey and that of water, and suggests that Mr. Taylor may be right in assuming that the boiling-point of the former is much higher than that of the latter. I am surprised that neither Dr. Miller nor Mr. Taylor made the experiment each one for himself. Taylor, as you know, believes that the evidence of "one's own senses" is "a thousand times better" than the evidence furnished by some one else, whose skill is unknown.

I took two thermometers, each showing register-marks running up to 220 and 230 respectively. Of course, I expected that they would show a boiling-point, when plunged into water in a state of ebullition of 212 or thereabouts. But imagine my surprise when one recorded 220 and the other one 224. I then plunged them into boiling honey, and the mercury went out of sight, and doubtless would have burst the thermometers had I not withdrawn them in time; but as neither one could show more than 5 degrees above that of the *indicated* boiling water, it proved nothing; and, taken all in all, I was satisfied that the thermometers were not accurate, for the difference in sea-level could not possibly make that much difference. I finally found a thermometer (how accurate it is I can not say), that we use in our rubber-stamp department, that will record anywhere from 220 to 350 Fahrenheit. This I plunged into hot water, but the mercury did not rise up to the point where I could see it. I next plunged it into honey that was boiling—yes, it boiled all over the stove—and got a record of 232. If this instrument were accurate—that is, would show boiling water at 212 or 213—then there would be a difference of 17 degrees between boiling honey and boiling water. As the boiling-point did not show at 220, then I *know* there was a difference of at least 12 degrees. If this thermometer showed *under* the actual boiling-point instead of *above* it, as did the others, we should be as much at sea as before.

I feel very sure that some of our readers will be in position to use accurate thermometers and give us the *actual* boiling-point of honey as compared with that of water. A good deal hinges on this question.

In the mean time I think that, for the time being, *until we know*, my wholesale recanting was the safer side on which to err. Another point to be considered is that, if a scientist boils his foul-brood germs in beef gelatine, or pure-culture fluid, the specific gravity of the gelatine will be about the same as that of honey—if any thing, greater. If he did the boiling in water then there may be something in the Taylor point.

PUSHING A GOOD THING; STANDING BY ONE'S CONVICTIONS.

I HAVE been criticised for pushing the merits of plain sections and fences ; but the criticism has come very largely from those who have not tested them, and from one or two others who have tried them in a small way. To all such I have only the kindliest of feelings. I know it is natural for outsiders to think that the Root Co. would push them because of the few paltry dollars there would be in a new thing. Indeed, if I were an outsider I am not sure but I should share this feeling, because there are grasping monopolies, and one who does not know us better might think we were one of them. As to our being a monopoly, nearly every thing of value in beedom is as free as water—open to the competition of the world. But I hope we have a higher motive than that coming from the love of the "almighty dollar."

When I feel morally certain of the value of a thing, as I am of the plain section ; when I have seen the results with my own eyes ; when I have talked with the men who have used the thing, and like it; nay, more—when I have read scores of reports favoring it, I do not feel like backing down even a little. I would have been just as willing to back down in the advocacy of plain sections as I was in the case of the deep-cell (or drawn) foundation. But as time goes on, and as reports pile in, I feel more determined than ever to stand by my convictions. Favorable reports are coming in every day, as I have said before; but there is not space in the journal to publish them all. But here is one out of several that I had pigeon-holed to go into our letter-files. It speaks for itself:

> I have tried the fences the past season; and if any season would show up the poor side of an appliance for bees or bee-hives, the last one surely would. I watched the outcome of using fences very carefully, and note the following : Two hives of bees, side by side, were given the second super each, one containing fences, the other old-style sections 4¼x4¼, no fences or separators, both having stored the first supers nearly full. The one containing fences stored nearly double the amount that the other did. Now, I found this to be the case all over the apiary; in fact, the bees seemed to give the preference to supers containing sections and fences, no matter whether they were next to the hive-body or two or three supers above. I won't say why this is so, but will leave that for you. As to the matter of cleaning fences, it is not a very great task, as only the uprights have to be cleaned; and the pleasure of having neat and even sections of honey compensates for whatever extra time is used. W. T. SHERMAN.
>
> Millard, Wis., Feb. 13.

LARGE OR SMALL COLONIES?

IN the *Bee-keepers' Review* for February appears a symposium on this question, the subject-matter being made of extracts from various bee-journals, followed up by an extended footnote by the editor. He sets forth fairly the views of the different writers, but still clings to the opinion himself that the smaller hive is *the* thing. He finally summarizes the matter in this way:

> Bro. Dadant's trouble comes from expecting and *getting* too much out of each queen. Instead of "horsewhipping" the queens, I would get more queens to help them. Hive your swarms in smaller hives, give fewer combs to each queen, and another year you will have more queens in proportion to your number of combs than you have now. Bro. Dadant says to himself, "Here I have 1000 combs and only 80 queens. I must give these queens all the room possible, so as to get just as many bees as I possibly can." *My* way of looking at it would be like this : "Here I have 1000 combs, and I want to get just as many bees out of them as possible, so I will have plenty of queens, and thus get the combs just as full of eggs as I can." You see that Bro. Dadant and myself are both after bees, but we go at it in a different way.

It does not seem to me that Bro. Hutchinson quite hits the nail on the head. It is not a question of whether one queen or a plurality of them raises a certain number of bees; but it is a question whether the colony shall be a large or a small one. As there can be only one queen in the hive, then (if the colony is a large one) one queen must be the mother of all the bees. But Mr. Hutchinson seems to take the ground that, as it is difficult to get a queen that will breed up to such a point, better have two queens in two colonies. But I raise the question right here : Suppose there are 5000 bees to the pound, and that there are five pounds of bees, or 25,000 to the average eight-frame colony. With two eight-framers we should have 50,000 bees. My theory and practice are that the 50,000 in *one colony* will bring in more dollars to the bee-keeper than the *same number* equally divided *in two colonies.*

It is well known that one large factory, for example, can manufacture more cheaply and make more money than two smaller factories of half the size. The same executive force of the smaller concern, the same book-keepers, the same clerks, the same foreman, can manage a producing force of twice the size as economically, or very nearly so. Perhaps the illustration is not quite parallel, but it serves to illustrate my idea. During the working season it is conceded, I think, that a large colony will have more working bees *in proportion to its size* than a small one.* But Mr. Hutchinson may bring up this question: Granted that there are more working bees in a large hive in proportion to its size, would such a colony make more *money?* Mr. Dadant has handled more bees—that is, operated more colonies—than any of the parties in the discussion. Others may have handled as many for a short time ; but the Dadants as well as the Frances have each operated some 400 or 500 colonies for a period of 15 or 20 years, and have made *money* as well as honey.

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* After I had prepared the matter it occurred to me at this point that there might be a question raised here. This I referred to A. I. R., and he replied something after this fashion : It takes fewer rods of fence per acre in a large field than in one of less size. In the same way there are fewer bees required to keep up the necessary animal heat per square foot of brood in a large colony than in a small one ; that is to say, the bees that might ordinarily be required to act as nurse-bees, and to help sustain animal heat *in a small colony,* in a large one can go to the field. A. I. R. thinks it is almost an axiom that there are more working bees in a large colony *in proportion to its size* than in a small one.

OUR HOMES,

BY A. I. ROOT.

They bind heavy burdens and grievous to be borne, and lay them on men's shoulders; but they themselves will not move them with one of their fingers.—MATT. 23 : 4.

Since I have had something to say about divine healing, a great mass of correspondence has been sent me, indicating that there is a deep interest in the subject. Periodicals explaining Christian science, faith cure, more than I can read, have been sent in. A good many insist that I am groping in midnight darkness; quite a few think that I exhibit my want of faith by using even such a remedy as hot water; but people in whom I have most confidence, especially the ministers of the different denominations, agree with me, I believe, as a rule. I may be in darkness, but I am praying for light, and I have faith in the great Father above to believe that he will give it. At the present time I can not agree with Dr. Dowie that it is never God's will that we should be sick. How could we appreciate health or freedom from pain if we knew nothing by practical experience of sickness and pain? I am sure God teaches *me* great lessons by permitting me to suffer; and while my fellow-men are obliged to suffer, I prefer to take my share of it—yes, even though it makes me at times groan with anguish, and causes me to pray for deliverance.

Since I have been confined so much at home, and many times obliged to lie on my back, I have been asking God to indicate to me what I shall read. I can not bear to sit still idly; and while there are great heaps of books and periodicals piled in upon me every day, it needs wisdom to choose what to read and what not to read. One Sunday, when it began to be evident that I could not go to church, I wanted something suitable for Sabbath reading. When I want something of sufficient interest to make me forget my pain, I often turn to a Sunday-school book, and I have never yet been disappointed. I have never found a book from our Sunday-school library that did not teach good and wholesome lessons. I wish I could say as much of the books in our town library. Well, on this particular Sunday the only Sabbath-school book in the house was by Mark Twain. I hope my good friend Twain will forgive me when I expressed surprise that any book he had ever written should be placed in a Sunday-school library; and for a while I could not think it quite the thing to read Mark Twain on Sunday. Then I remembered my previous experience, and concluded that the committee who selected the books must have had some good reason for selecting this one.

The title of the book is, "The Prince and the Pauper." I read it clear through during the day, and was both surprised and delighted to find that I could so thoroughly enjoy *any* book under the circumstances. If I am not a better man for the lessons I received during that one day, I certainly *ought* to be. The author does not choose any text to start out with; but I have supplied a text. A sort of legend, or tradition, we are told, furnished the foundation of the story. If the book were only published in a cheap form, I should delight in furnishing it to every friend I have in the world, at a very low price. May be it is—I do not know.

Away back, about 300 years ago, by a queer combination of circumstances a boy king was transferred from the royal palace to the slums of the city of London. For several days, or may be weeks, he was obliged to put up with the same sort of life that the poor degraded outcasts have to bear. He was obliged to submit to every form of injustice with which the laws of England away back ground down her subjects. In the back part of the book is an appendix giving us true copies of the laws and customs of that time. We sometimes speak about asking a doctor to take his own medicine. This young king was absolutely obliged to submit to the punishment that his laws were made to inflict on others. Perhaps the laws were not of his own making; but when he knew about them he had been permitting them still to stand on the statute-books. The book is a sort of turning things around. It says, in substance, what poor people often do say to those who are away up in wealth and high offices: "Suppose you change places with us just a little while, and see what you think of it."

Then there is another phase of this book that took a mighty hold on me. This penniless youth, without a friend in the world, kept proclaiming, "I am the king's son." But everybody laughed at him, and called him a madman. In one sense he was *worthy* of being king — he took it all patiently; he submitted to all their indignities in a way that was almost Christlike; but during all of that terrible experience of suffering, oppression, and wrong, he made mighty resolves to change things if he should once succeed in getting back where he belonged, for he never for one moment doubted that he would ultimately regain his crown and reach his own. Under the circumstances it was grand and noble in him to hold fast to the fact that he was king, or, if you choose, the king's only son. I hope my readers have read Pansy's conception of what it is to be a "king's daughter;" and in like sense we each and all of us may be, if we are not, *sons* and *daughters* of the *king*.

I now wish to tell you how the book did me good. When those terrible zero days were upon us I went all over the factory to see if the rooms were comfortable for the men to work. Some of the drip-pipes were frozen up; but we soon got them free, with the exception of one radiator, or, rather, long coil of pipes. The heat went only half way through; and the men who were obliged to work near that west wall, exposed to the zero blasts, where the pipes were cold, really suffered. I called Harold to help me. He is the young plumber I have often mentioned. We followed the drip-pipe of this coil down through three stories below, warmed it up with hot water and lamps, but all to no avail. When I came around again I found the pipes were still cold, and said to the men, "If you can keep on with your work just a little while longer *I* will get the steam through these pipes. I am sure I can, for I never yet failed when I stuck right to it." Well, I fussed with those pipes all day, but I could not get the steam through. I consulted the "boss plumber," and he said the drip *must* be freezing up somewhere, for there *could* not be any other reason why it should not heat up as it had done every day all winter. During the middle of the afternoon I decided there was not pressure enough, and so I got the engineer to give more pressure on the exhaust steam. This, of course, loaded the engine more, but it was only temporary. It did not make any difference. The men stuck to their posts and kept at work. I pitied them from the bottom of my heart, and felt disgusted with myself to think that I could not unravel the mystery. I went to Ernest and John about it, thinking I could get sympathy, even if I did not get any mechanical assistance; but they just laughed, and told me not to worry myself out (and catch *more* cold) about the pipes; if the men got so cold they could not stand it, let them go home. But I knew these men sadly needed the money for every hour they worked. Besides, it was quite important that the work should be pushed ahead. The day's work was finally ended. The men stuck to their work, but the mystery was unsolved. I told the night watchman I was going to have steam through that coil of pipes, even if it took all night to do it. Then we managed to turn on "live" steam; but even live steam would not go through. I took hold of the valve and turned up it until it was closed, and—*then I swung my hat.* Turning the stem of the valve out and in made no difference whatever. During the day I had suggested to the foreman of the piping that it seemed as if that valve was stopped up; but he declared it could not be, for it was certainly wide open, and it was a *brand-new valve.* I went after him when I made my discovery, for he happened to be in the factory, and asked him to get a wrench. A few minutes revealed the trouble. Even though it *was* a brand-new valve, and cost quite a little money, the disk that opened and closed the passage had come loose from the stem, and was stuck in the seat. The only steam that could get through, either live or exhaust, was what got through the center of the disk. The next morning, when the whistle blew, the radiator was hot, you may be sure. Now, perhaps people do not often suffer this way in factories; but this illustrates the way people at large *do* suffer from defective machinery; the same in the way of framing laws or governing nations; and unless the king or the law-makers "swap places" with the working people once in a while, who would see to it that these wrongs are righted?

At another time, on going into the saw-room the air was so full of dust it made me cough so that I could not have stayed there many minutes at a time. I asked one of the men what the matter was, and he said the dust-pipe was off from his machine. When I asked why it was not put on he said it filled up right away, so it was no use, and so they just pulled it clear off. I asked him if somebody was remedying the defect, and he said he did not know. The foreman said they had been fussing with it, but the matter was dropped, and he did not know what they were going to do. I traced the matter up, and was told that the large belt was loose, but they could not very well fix it until they shut down at night. I then explained to the men who were suffering, and asked them to get along as well as they could. If they stopped work it would stop the work of the men ahead of them, and so there seemed to be no way but to put up with the dust. I got over in the morning as soon as the grip would let me go, but they were *still* suffering from dust. I was told the belt had been repaired the night before, but the room got so cold during the night that the glue did not hold. On a similar occasion before this, some coal-oil lamps had been kept burning by the night watchman, so as to keep the glued joint warm enough to have it dry thoroughly. I inquired why the lamps were not used the night before, but I was told it was because nobody looked after it. I should have looked after it, probably, had I not been "under the weather." Now, I hope no one will feel hurt when I suggest that there seems to be a sort of indifference all around in regard to these necessary details. If the men who are obliged to bear the dust had had a chance, I am sure they would have put in vehemently to have that belt looked after so there could not be any failure.

Now please do not think, dear reader, that I attend to *all* these things as I might do and as I ought to do if I really loved my neighbors and my fellow-workmen as myself. I need exactly the stirring-up that Mark Twain's piteous appeal in that book gave me; and the whole wide world needs stirring up in just this way. Jesus came and lived and *died* to exhort men along this very line. He said not only in words but by acts, "Not to be ministered unto, but to *minister.*" Now, I know we are not all proprietors of factories; we are not all kings and princes, nor even high officials for the government, nor superintendents of railways or other institutions; but we usually get into these high and honorable places because we are faithful. The Bible says so. "Thou hast been faithful in few things, I will make thee ruler over many things." We are none of us as faithful in the little things as we ought to be. The little incidents of everyday life will illustrate it. You can not hang up a bright tin cup at any well or spring, because somebody will carry it off — not dishonest people necessarily, but I do think they are *selfish* people. A carriageful of ladies carried off a tin cup from the well right out in front of where I am writing. They drove up, passed the cup all around, and seemed to enjoy thoroughly the water that was running freely, purposely for the public benefit. *But they carried off the cup.* Perhaps they *forgot* to hang it on the nail by the hydrant. Is not *forgetfulness* largely selfishness, when you get right down to it? Dr. Miller says if you will punch a hole in the bottom of a drinking-cup it will not be carried off. Just think of obliging everybody to stoop over, while he slakes his thirst, to keep this stream of water away from his clothes and polished boots, just because of this very custom of carrying off the cup! Borrowing tools and keeping them is along in the same line. There are few things that make me so much care and worry as to look after our gardening-tools, especially in seeing that they are brought home. A near neighbor, and a good man—at least I call him so—borrowed my scraper last fall. I inquired about it several times, and gave orders to have it put away in our dry toolhouse; but in spite of me it has been out of doors all winter. Is this world *too full* of cares to permit anybody to look after *every* thing, especially these *little* things? Well, most people manage to find time to look after things that seriously interfere with their *own* comfort and happiness; but how many of us look after the things concerning the comfort and happiness of our friends and neighbors just as well?

Now, there are a great many paupers in this world, but there are very *few* princes; but I honestly believe there ought to be more. There ought to be more girls and women who are ready to say, with honest pride, "I am one of the King's Daughters;" and then there ought to be more men and boys who are ready to say with equally honest pride, "I am one of the King's Sons." If anybody asks you what king, tell him the King that came into this world, not to be waited on, but to be a *servant*. Pilate said unto Jesus, "Art thou a king?" Jesus answered, "I am a king. To this end was I born, and for this cause came I into the world, that I might bear witness unto the truth." The world may not recognize us; but, never mind; neither did it recognize the King of glory when he passed all about among humanity. When we are prompted to be selfish, and tempted to do that which is wrong and beneath the character of a *prince*, let us say in our hearts if not aloud, "No, I am a prince—the son of a King." We are told to beware of pride; but here is a place where a little more pride would do us good.

And now may be these words will strike somebody who has charge of a lot of men; or a teacher who has under his care a lot of children; or a minister who looks after and sets an example before a lot of people. Shall we not, each and all, remember every little while to (at least *mentally*) change positions with those under us? "As ye would that men should do unto you, do ye even so unto them."

ANOTHER SIDE TO "LEAVES OF HEALING."

A subscriber sends us the following, clipped from the Chicago *Interior:*

> The death of Mr. Henry Walter Imler, of Fremont, Ohio, is a pathetic instance of the illusions which Dowie practices upon good and faithful men. Mr. Imler was a worthy member of our church in Fremont. He was smitten with cancer, a disease which is marked by medical charlatans as the one which offers the largest possibilities for fraud and financial bleeding. Mr. Imler was induced to submit himself to Dowie, who seems to know enough about palliative medication for his purpose; he persuaded Mr. Imler that he had effected a cure, and filled pages of his publication in heralding the case. Thus having both lined his pockets and obtained the means for inducing others, Dowie sent Mr. Imler home to die. It is no reflection upon Mr. Imler's memory that he fell a victim to such delusion. For all like cases unprincipled practitioners or pretenders lie in wait, and it is not in hopeful human nature to lend a deaf ear to assurances under such circumstances.

HEALTH NOTES

BY A. I. ROOT

SOMETHING MORE ABOUT GRIP, ETC.

In another column I have told you of the trouble we had in finding out what the matter was with the steam-pipes, that they would not heat up. In a large factory where there is much machinery and complications of pipes, wires, etc., a great many times there are troubles that are hard to find. A great many people give up, and say, "Well, I do not know just what is the matter with the thing. If somebody else can fix it, I wish he would do so." And somebody has to do it. Sometimes it takes a good while, and takes lots of money. But the person who ferrets out the mischief, and corrects it, gets a feather in his cap, so to speak. We often read in the papers about detectives, how they work and study and follow each little clew. Well, I have been somewhat of a detective along this line all my life; but instead of following criminals, mine has been a pleasanter work, for I have followed Dame Nature, and wrested from her her secrets. Dame Nature I love, and I believe she loves me; for she has always rewarded me for my time and pains, sooner or later. I found out why the pipes did not get hot, but I fear some of my friends suffered grievously from the cold, as it took me so long to get at the mischief. When I was telling Mrs. Root about it, and describing to her the way we drenched the poor pipes with the boiling water, and then smoked them up with a kerosene torch, etc., she said it made one think of the way the doctors sometimes use powerful medicines, and even resort to surgery, while the real mischief is perhaps away off in another part of the body.

I told you about my tussles with the grip. By applications of hot water my teeth got well and sound, and the pain in my ear went nearly all away. But after the zero weather was passed, and it began to be wet and rainy once more, I caught cold again, and this time it centered in the calf of my right leg. I limped around for a few days, and then gave up trying to walk; pretty soon the pain became so severe that I had to lie down. The contrary thing would not even permit me to sit up in bed. Unless I lay flat on my back, with my leg in an easy position, the pain was almost unbearable. It was a curious thing and I began to study it. I tried all sorts of liniments, tried brisk rubbing, but none of these things did a particle of good. Electricity gave relief so long as the current was applied, but the pain came back promptly as soon as we stopped turning the crank. By the way, there are a lot of such remedies. They may give one a little respite, but they confer no permanent benefit. More than forty years ago I took the agency for an electric apparatus for the cure of diseases; but I never sold a machine, because I was very soon satisfied that electricity gave no permanent benefit; and I have followed all sorts of electrical appliances from that day to this, and I am still of the same opinion. Of course, the pain in my leg was not always alike. Sometimes it went away so I could walk around quite well. Then, again, it came on quite unexpectedly. It behaved so much like the pain in my back after I had that "crick" that I began to connect the two. Yes, you may be sure that I prayed about it all along, and I prayed with faith—not that I might have relief from pain, so much as that the great Author of *all* life might lead me to understand better that I might teach others, and teach them truth; and my prayer was answered. Inasmuch as the hot water in my nostrils, described and figured on page 104, cured my tooth and ear ache, it one day occurred to me it might possibly have some effect on the painful and swelling limb. I took perhaps two quarts of water, as hot as I could bear it, through my nostril. I sent it with force enough so a part of it came through into my throat. When the stinging sensation, something like strangling, became too severe, I raised my head enough to give less force to the stream of water. In a minute or two the respiratory organs and the organs of the ear that had been affected became warmed up, so there was quite a discharge from the nostrils and throat—that is, by sneezing and clearing my throat—and the heat was sufficient to induce considerable perspiration;* and, sure enough, my leg was free from pain. After having sneezed and expectorated, I would feel well enough to go over to the factory and read my letters. Mrs. Root laughed when I told her I could cure my *leg* by applying hot water to my *nostrils*. The neighbors laughed. I presume they thought I was a sort of hot-water crank. Yes, and the doctor laughed (for I had called the doctor in to know if it could be inflammatory rheumatism that was crippling me); but after I showed him my apparatus, and gave him my explanation of the matter, he owned up that I was *probably right*. He said a great number of his patients had been troubled with the grip in the ears, face, nostrils, and teeth. Some of them had had their teeth pulled, thinking that might help the matter; but it did no good. Others had suffered excruciatingly, and finally an abscess or something of that sort had formed in the ear or nostrils, giving no relief until it broke and discharged this foul matter. He said, by the abundant and free use of water, and by keeping the passages open between the ear, nostrils, and throat, he felt sure such troubles might be prevented.

The trouble in my leg was, without question, neuralgic pains that had their origin in the organs of the head. Perhaps the crick in my back, a month before, had served as a sort of communication with the leg; and in my case the grip had confined itself *entirely* to my right side. Now, what sheer folly to put liniments, electricity, plasters, or any thing else, on the *leg*, when the real trouble is in the *head!* I think I have heard somewhere of curing bruises on one's heel by putting a plaster on the top of the head, and you see I have been getting pretty near to it.* I do not know but some of our medical friends will think I am taking a great deal of liberty in presuming to teach; but I believe the more sensible ones will tell me they have had many cases quite similar. There is this comforting thing about the hot-water treatment: After you get well you know you have not injured some other organ of your body with some powerful drug that perhaps did not hit the spot at all.

I hope that this little story may help somebody else out of similar troubles, and give relief to suffering. I have had several communications in regard to the vapor-bath treatment. It is probably right along in line with what I have said. Of course, the hot-water spray I have described takes much less time and trouble; for five minutes is plenty of time to rinse the nostrils thoroughly after you have the apparatus rigged.

Since the above was put in type I find the following on a scrap of newspaper:

> The famous Dr. Salisbury frequently made the statement that, if he were to be deprived of all means of cure except one, he would choose hot water, thus proving his right to be called a wise physician.

How refreshing it is to discover that great (?) minds usually run in parallel channels!

HIGH PRESSURE GARDENING
BY A. I. ROOT.

ORIGINATING NEW VARIETIES OF STRAWBERRIES AND POTATOES.

On page 148 I said you might grow a whole acre of seedlings, and not find any thing better among the lot than the potatoes and strawberries we have already. Friend Cook, who advertises potato seed in the same issue, thinks I put it too strongly, and perhaps I did. I wish those who have furnished a valuable potato or strawberry for the people would correct me if I need correcting. Friend Manum has given the world a valuable potato, and he has been at work at it a good many years. I wish he would tell us something what the chances are. If you have seed to commence with, from some of the *best varieties known*, of course this should make a difference; and when one does succeed he confers a lasting favor on the whole wide world. The man who gave the Concord grape, by that one stroke supplied the world with a beautiful, wholesome fruit at a price that was never dreamed of until the Concord became known. So it is with other things. It is a grand work to engage in—working for new and better varieties; but whoever starts into it should have a fair understanding as to what his chances are.

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* Sometimes the hot water brought tears also, from the eye nearest the trouble; but they were not tears of sorrow, for with the tears came freedom from pain.

* In the case of the pipes, the cause of all the trouble was more than 100 feet away from where we had been fussing with lamps and hot water all day long; and the neuralgic pain, where I had been fussing with liniment, hot water, rubbing, etc., had its origin in nearly the most distant point in my whole body. Perhaps I should add that, during all this time, there was more or less of a dull pain in that ear. It felt somewhat stopped up, and was more or less deaf, although it had so nearly recovered I had thought but little about it.

SUB-IRRIGATION IN THE OPEN AIR.

All attempts in this direction, or nearly all, so far as I can learn, have been mostly failures. For greenhouse benches, where we can control the amount of water applied, and where rain is kept off by the sashes above, the plan is all right; and one might suppose it would work all right in the open air in California and other climates; but the California *Cultivator* decides it is a failure even there. Irrigation of any kind should be in sight, so you may know what you are doing. Another thing, the water should not be down too low. Here is a suggestion from the above publication, and one that I feel sure will work for strawberries and other garden-stuff where the roots are near the surface:

> Where plants are set in close rows and are not very deep-rooted, but want water often and in moderate quantities at a time, lay a line of common drain tile with backs flush with the surface between the rows. Through these one can run water so that it will wet each side for a foot or two and moisten sufficiently up to the surface, yet without making the top soft enough to bake.

In order to make the above plan work, your ground must be nearly level, else the water will all run down to the lower end without wetting the plants where it starts in. The joints in the tiles will permit you to look down through and see what the water is doing; and when heavy rains come unexpectedly, these same tiles will act like surface drainage. You know I have for years declared that, when we had a great abundance of rain, as was the case last fall, our ground should not only be underdrained, but it should be surface-drained, and these tiles laid just below the surface of the ground will make the best kind of surface drainage. Of course, all the cultivating must be by hand-tools. If you are growing strawberries, when it is desirable to put something else on the ground to get the usual rotation of crops you can easily take up your tiles, prepare your ground thoroughly for some other crop, and then put your tiles back again if you want them.

A NEW TRICK IN LAYING TILES FOR UNDERDRAINS OR OTHER PURPOSES.

This new invention (for I think it is worthy of being called such) will apply to laying tiles for sub-irrigation or for any other purpose. In fact, whoever has dug ditches by hand, and laid the tiles, has doubtless been disappointed when standing at the end of his ditch, and looking up or down the line of tiles just before they are laid to cover up, to see so much "crookedness." I have actually spent more time than I could really afford to in dressing out the bottom of the ditch with the proper kind of scoop to make the tiles lie with an even grade and in a straight line, both up and down and sidewise, to find my careful work, when reviewed from the top of the bank, look more like a worm fence, both up and down and sidewise, than like tiles laid as the books and papers direct them to be laid. Some of you may say it does not matter, if they carry the water all right. But they *don't* carry the water all right. If you have ever had occasion to take up a line of tiles, and have seen how the mud accumulates wherever there is a little bend downward, you will realize the importance of having tiles laid true and on a line. Well, this new invention consists in having a smooth straight round pole that will just slide through the smallest of your tile. This pole may be six, eight, or ten feet long — the longer the better if you can keep it straight. Have a small stout ring in one end, and an iron hook to catch in the end to draw it along. Lay your tiles with this round wooden rod inside of them, but do not pull the rod out until you have packed the dirt all around your tiles so they will stay in place. Now catch hold of the iron ring and pull the rod along, slipping on more tiles, and so on. In this way the joints match exactly on the inside, where you want them to match; and your tiles strung on this rod are just as straight as a string can be stretched—that is, if your pole is straight. A piece of gas-pipe perfectly straight, and of the proper size, is just as good as the pole, only it is rather heavy to handle. I saw this illustrated in some periodical; but I actually can not give credit just now, for I have forgotten where I saw it. If somebody will tell me where it was first pictured and described I shall be happy to give credit.

SOY BEANS IN KANSAS.

I take the following from Bulletin No. 24 of the Kansas Experiment Station, Manhattan, Kan.:

> The Kansas Experiment Station has been growing the soy bean for the past ten years, starting with a small patch, and increasing the area until last year 35 acres were grown. It is a good drought-resister, is not touched by chinch bugs, and the beans are richer in protein than linseed meal. With sufficient moisture to germinate them, a crop can be grown after wheat and oats are harvested. In 1896 the yield on ground after wheat was 8 bushels per acre, in 1898 6¼ bushels. With linseed meal at $25 per ton, these crops after wheat would be worth $6 and $4.68 per acre. When planted earlier in the season, the yield of soy beans is from 10 to 20 bushels per acre. The soy bean not only furnishes a crop rich in protein, but at the same time enriches the soil. Henry Rogler, one of our graduates, reports an increase in large fields of 5 bushels of wheat per acre on land where soy beans had previously been grown, over land that had not been in soy beans.

The point that interests me especially is the last sentence in the above. You not only get a crop that pays, but your land is better off to the extent of five bushels of wheat per acre after the crop is taken off and sold. The same bulletin gives the results of feeding soy beans to pigs. It tells how to grow and harvest the crop. Our Ohio Experiment Station agrees, I believe, with all the above.

HOW TO GET EXTRA-EARLY POTATOES.

The following is from a press bulletin from the Kansas Experiment Station :

The Horticultural Department has been experimenting for two years on the methods of hastening the growth and maturity of early potatoes. On Feb. 23, 1897, tubers of White Ohio, Beauty of Hebron, Early Harvest, and Carman No. 1 were set in shallow boxes with the blossom ends up. They were filled around with sand, leaving the upper fourth exposed, and the boxes placed in a room of rather subdued light, and a temperature of 50 to 60 degrees. Vigorous sprouts soon began to push from the exposed eyes.

On March 22 the potatoes were planted in furrows, the tubers being removed carefully from the sand, and planted in the same position in which they stood in the box, and 14 inches apart in the row. They were not cut, but were kept entire. Similar parallel rows of each sort were planted of whole tubers selected from potatoes taken from the storage room, and unexposed to light till planted.

As they grew, the sprouted potatoes took the lead from the start in vigor and strength of top ; and both lots of whole seed kept ahead of cut seed of the same varieties. June 1 the sand-sprouted lots showed excellent young table potatoes while none of the others were yet large enough for use. A week's difference was apparent in the two lots. On June 16, the sand-sprouted potatoes were still ahead in size, though not as much as at the first examination. At the final digging, July 24, the sand-sprouted lots showed better tubers, and 10 per cent larger yields, than the others.

In the spring of 1898 a similar experiment was carried on, using four other varieties ; viz., Triumph, New Queen, Thoroughbred, and Early Six Weeks. Two methods of treatment were also employed. The lots were divided, one half of each lot being placed in sand under the conditions employed the year before, and kept moistened, the other half of each lot being put in open boxes, and placed in a light dry room with a temperature averaging about 50 degrees. March 26, all lots were planted. The tubers that were placed in sand had strong vigorous sprouts, and were nearly all rooted. Those in the open boxes were beginning to sprout, but of course had thrown out no roots. The sand-sprouted lots took the lead in growth, and furnished table potatoes several days in advance of the lots sprouted in open boxes, although the latter were ahead of the lots planted at the same time from the storage-room.

Whole tubers sprouted in rather moist sand, and planted about the 25th of March, give the best results, and produce table potatoes seven to ten days earlier than the same variety planted at the same time but not so sprouted.

Such a difference in time is of great importance to the grower, whether the crop is for the home garden or market. The gain of a week's time will well repay the efforts required to produce the extra early crop.

W. H HALL.

The above is simply a modifiation of the method employed in the Island of Jersey. Please notice the potatoes are set in moist sand about a month before the usual time for planting. We have failed several times by getting them into the open ground too early, so the potato-plants got a setback by being nipped by the frost. In our locality I do not believe it will pay to put them in the open ground before about the middle of April. If a frost comes, of course you can pull a little soft dirt over the sprouts—that is, if they are not too far above ground.

POTATOES THAT DO NOT SCAB — THE WHITE ELEPHANT.

I have raised the White Elephant potato, and have been acquainted with it for 18 years, and have never known it to scab, although others planted alongside were so scabby as to be unfit for use They are prolific, and fine potatoes for the table, being a smooth white, rather long, and flat-sided. Our neighbors have all got seed of us, and have never heard of scab or a failure of crop. MRS. R. E. HAMMOND.

Saylersville, Ky., Feb. 28.

The above potato is comparatively well known; but I have never heard before that it was less liable to scab. I notice that Landreth, in his catalog, describes it as late, does best in light sand, heavy yielder. He quotes it in January at $2.70 per barrel. Has anybody else noticed this same peculiarity in the White Elephant?

COW PEAS—HOW TO CURE THE HAY, ETC.

On pages 148 and 149 I note what is said of "cow peas." I live in a section of North Carolina that was growing cow peas as a renovator of the soil, and for feed to stock as forage, before Prof. W. F. Massey left the "Miller" school in Virginia to go to our North Carolina Experiment Station. I don't know the Benson pea by that name, but there are a great variety of cow peas. Some of them mature in 60 days from planting, hence *should* mature anywhere north. Cow peas ripen very irregularly. There can always be found ripe peas and blossoms among any variety of them, as the first ripe peas appear. And if the ripe peas are kept gathered off the vines, these same vines will continue to blossom and bear peas for a long season.

They require warm weather to grow in, hence should not be planted till *two weeks* after all danger of frost has passed.

Peavine hay is obtained by sowing the peas broadcast at the rate of 1½ to 2 bushels per acre, and then plowing them in, or cutting them in with a disk harrow, without allowing them to lie in the hot sun over two hours, exposed; if you do they will not come up well. When the first ripe pods begin to show, mow your peas down after the dew and moisture have dried out. In the evening, before the dew falls, rake it into large winrows and let them remain until the next evening (unless it threatens rain ; if it does, pile them in cocks of 400 or 500 lbs.); then go and cock them up in cocks, the same as other hay, 5 or 6 feet high, and as small at the bottom as possible for them to stand up well. After being cocked up for 4 or 5 days, so they have wilted, and the stems of the vines are reasonably dry, thus being air-dried instead of sun-dried, they are ready to be put into large stacks, or hauled up to the barn, but should be exposed so all the air possible will pass through them—in either event until the stems are dry enough to break when bent.

Never feed peavine hay, that has been frost-bitten, to stock. Cut when the first dry pods show, then air-dry by any plan you like. By not letting it get damp or wet after it is cut until it is thoroughly cured you will have some of the finest green or bright forage you ever fed, and all stock eat it readily; will leave other hay or forage for the pea hay. Getting wet turns it dark, and creates a dry dust among the vines and stems If left to mature peas before it is cut, the leaves all shed off and you have nothing but dry stems and vines that are tough and little good.

Goldsboro, N. C. ABBOTT L. SWINSON.

A NEST-EGG THAT KEEPS OUT VERMIN.

I believe my first hobby in the way of any sort of business was raising doves ; and when some wicked sportsman shot one of my pair of doves, oh what wailing and weeping there was around our home ! and I do not know but I have had a spite against sportsmen—yes, and against guns also — ever since. Well, when I got a little older I went into the egg business, and I succeeded too; and every little while through the fifty years that have passed I have felt a longing to study "chickens" once more. Well, here is something from the *American Cultivator* that took my attention strongly :

ONION-PEELING IN HENS' NESTS.

One of the best materials for making hens' nests is the outside peel of onions It will drive away if it does not destroy hen lice. These peelings, or a piece of the onion itself, ought to be always in nests where hens are sitting on eggs. The warmth of the hen's body will so scent her feathers that the lice will be glad to clear out, and the hen will be equally glad to have them do so. With a good place for rolling in the dust, under cover, so that the dust will not be turned into mud, it is not difficult to keep hens free from vermin.

Now, in the above there is no hint of using a white egg-shaped onion for a nest egg; but it came into my mind like a flash that our White Victoria onions would fill the bill exactly. Mrs. Root says the hens would kick the onions out, and refuse to be humbugged; but if some of our nice Victoria onions are not a better imitation than a great part of the nest-eggs commonly used, then I will give up. Just try a hen that wants to sit on a nestful of white onions. If the hen does not do *her* part, I shall be mistaken. (Whenever you set a hen, always put in *one* white onion.) Well, now, friends, if in the course of time the standard nest-egg of the world should be a *white onion*, won't you all bear witness that Uncle Amos first suggested the idea?

Our Roll of Honor.

Friend Root:—I have been a subsciber to Gleanings since 1883, and have received "real estate" benefit from its teachings in apiculture, and especially from Home teachings. I want it to live and benefit others.
Joy, Ill., Feb. 14. W. M. Miller.

I have taken Gleanings so long that I don't think I can do without it unless my bees all perish. I have been looking over my old Gleanings. The oldest are of 1879; but as I have been in the habit of giving them to others who cared to read on the subject after I had read them I am not certain when I commenced taking it. J. B. Hains.
Bedford, O., Feb. 20.

I can not exactly tell the date when I began reading Gleanings, but I think it was in 1874, at Salem, Ind., where I resided until the fall of 1883, when I moved to Florida. I have not kept the papers having friends who were desirous of reading them, and very few of them ever returned home. Gleanings all these years has been a great and shining light to me in many dark places. May its light continue to shine and grow brighter long ages after you and I are no more on earth. John Craycraft.
Astor Park, Fla., Jan. 9.

Friend A. I. Root:—I think I have taken Gleanings over twenty years, and followed you through the *American Bee Journal.* I recollect reading about windmill, four-horse power engine, then forty, and up to the present. I do not take Gleanings for information about bees, as I have none; but I like your Home talks and information about home comforts, gardening, etc. I think I can say your writings have done me good, and have helped many times to lift me out of self (in mind), and led me to think of higher and better things. I wonder how many take Gleanings for the above consideration. Walter Senior.
Webster, W. Va., Jan. 21.

Dear Mr. Root:—I have been looking over that Symposium of the Veterans again, and I see the "25 years, more or less," takes me in also. I don't want the present, but I want to express myself in regard to some things I think I took Gleanings in 1880 or '81. I was then in Spotswood, New Jersey. I invented (or, rather, discovered) *one* way of imbedding the wires in foundation; that was, I think, in 1882. I took a sewing-machine needle, broke it at the eye, stuck the point in a handle, and then ran the broken eye over the wire and pressed it down. All was common, no patents. If any one discovered any thing new it was turned over to Bro. Root, and tried. Well, as a token of appreciation Gleanings was sent without pay. All your veterans seem to be bound to be helpful. If they have any thing that can benefit fellow-bee-keepers, they go to some trouble to give it freely.

But there is one part of Gleanings which is like the flashes of sunshine in a beautiful landscape; and that is Our Homes. I send Gleanings to my mother, over 70 years old, when we are through with it, and she enjoys reading it.

I understand you, Bro. Root, from Jan. 15th and following numbers. Those who *don't*, really miss the cream and honey of life. I send you a hearty amen! I had a brother (he is dead now) who came to Dakota, bought a quarter section of land and two yoke of oxen (stags), and went to breaking. It did not go very well. If you ever plowed with two yoke of oxen you know all about it. Somebody was concealed in the tall grass near by. Brother had great trouble. He got very angry, and it seemed as if he had to give it up; but he knelt right there by the plow, and prayed the Lord to forgive him for getting angry, and to help him. He placed all in line, and started again, and, lo! all went smoothly along, and he broke a great many acres of prairie that summer. Those who have had the experience know that there is much in the hymn, "Take it to the Lord in prayer." I can say with the Psalmist, "I had fainted unless I had believed to see the goodness of the Lord in the land of the living." "Wait on the Lord; be of good courage, and he shall strengthen thy heart; wait, I say, on the Lord." Stephen J. Harmeling.
Marion, S. Dak., Feb. 22.

Friend Root:—I was a bee-keeper before Gleanings started, and I have read nearly all the periodicals published on bee culture. The first paper I remember reading was published by H. A. King & Co., of New York, dating back to 1873, and we have one copy of that paper yet. As to the exact date when I became acquainted with Gleanings I don't remember; but I remember quite well the photo of yourself with Blue Eyes sitting on your knee, and when you signed yourself "Novice" I have been a subscriber nearly every year since, and have followed its teachings all the way through to the present time. "Our Homes" I have been interested in, and have read and practiced its teachings. While we have been reading and practicing what Gleanings has taught, we never met its editor until the Omaha convention, at which time we saw other old-time writers such as Dr. Miller, G. W. York, Dr. Mason, and others. We are still bee-keeping, and like to work with and handle bees, as well as when we first commenced. J. M. Young.
Plattsmouth, Neb., Jan 10.

Dear Mr. Root:—I think it was in 1871 when Mr. Axtell and I began keeping bees; and about two years later we began taking Gleanings. I well remember what a real comfort a letter from you to us about that time was, in answer to whether our bees were put up right for wintering, as we felt a good deal as if groping in the dark, though we had read every thing on bees we could hear of, reading and re-reading, and committing to memory directions given in books and papers. We have taken Gleanings ever since.

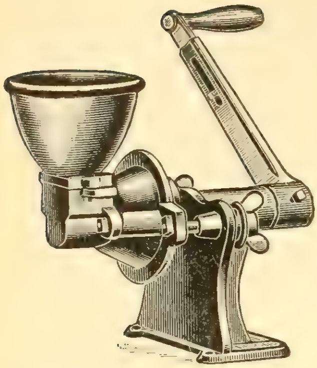
Gleanings has been a great help to us in many ways besides in helping us to understand bee culture. The Home Papers have been a source of comfort and strength, and generally the first read.

The first few years the honey crop was short, and bees did not pay largely; then for about ten years we had scarcely a failure; but the past few years honey crops have again been poor, and some years would be almost a failure except for the benefit to my health in working out of doors, and perhaps the benefit of bee-stings, as I have had some days as many as ten to fifty.

I have hardly felt like calling any year a failure, because of the benefit the bees have been to my health and happiness.

The largest amount secured in any one year was in 1882—39,000 lbs. of comb honey, except about 500 lbs. of extracted, from 180 colonies, spring count, and increased to 298. The following winter was very hard on bees, and we lost over 100 colonies, which taught us to go back to the Quinby mode of giving room under brood-frames, and packing hives with chaff, which will give successful wintering out of doors if the honey is good, and large entrances when wintered in cellar. Mrs. L. C. Axtell.
Roseville, Ill., Mar. 2.

Just now the men seem to have the floor. Although not a veteran, I am a subscriber, and I do enjoy reading Gleanings. In reading of your wheel-trips I was tempted to buy a wheel, and have been riding two years, and like it. At first I thought I was too old to ride one, as I was born in 1838. I do errands on it, make calls, and even go to church on it. Women have said to me, "I glory in your wheel." I can blame it all on Mr. Root. I thought he was not going to have *all* the fun in his old days. Sister bee-keepers, where are you? Let us not let the men have all the say. Success to A. I. Root and Gleanings is my wish.
Bilmond, Ia., Feb. 27. Mrs. J. H. Allison.



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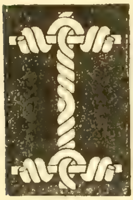

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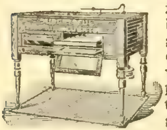

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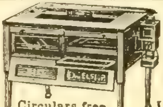

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114 to 122 S. 6th St., Quincy, Ill.

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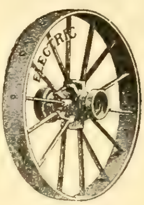

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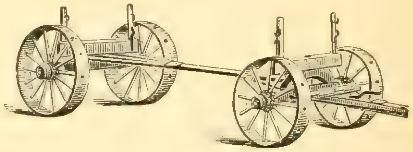

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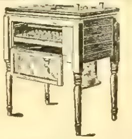

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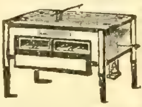

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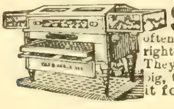

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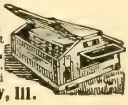

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Parties desiring these goods can get them of me, and **save freight charges.** Bees, Queens, and Nucleus Colonies from the **very best strains** in America. A 40-page illustrated catalog free. Address

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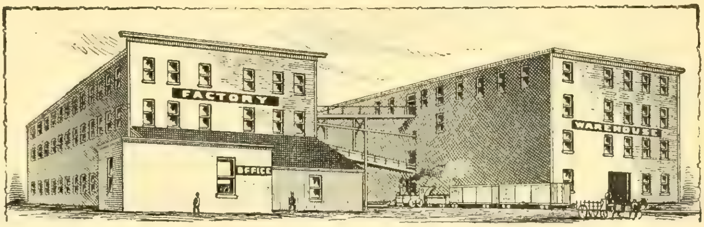

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

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Twenty years ago, comb foundation was a luxury. To-day it is a necessity. We sell the Weed Foundation—the best made. Root's sections to go with them are unparalleled. Send for catalog. If a dealer, get our wholesale list. Beeswax wanted.

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In buying seeds **"economy is extravagance,"** because the cost of cultivation wasted on inferior seeds always largely exceeds the original cost of the best seeds to be had. The best is always the cheapest. Pay a trifle more for

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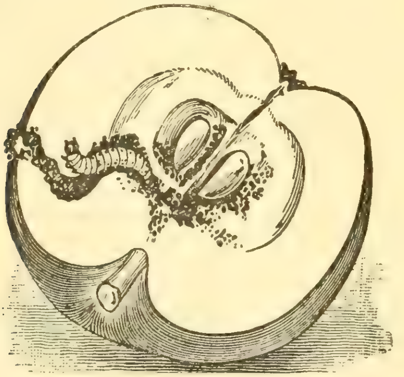

Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalog describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contains much valuable information, and may be had for the asking.

SEED DUE BILL FREE

To get new customers to test my seeds I will mail my handsome **catalogue for 1899,** lithographed and beautifully illustrated, and a **10c. Due Bill,** good for 10c. worth of seeds for trial, **absolutely free.** It is full of bargains. All the **Best Seeds, Bulbs, Plants, Roses, new Fruits, Farm Seeds, Potatoes, etc.,** at lowest prices. **Ten Great Novelties** offered without names. I will pay **$50. FOR A NAME** for each. Don't buy your stock until you see this new catalogue. Several varieties shown in colors. Great inducements for orders this year. **You will be surprised** at my bargain offers. Send your address on Postal to-day. Tell your friends to send too. Old customers will receive a copy.

F. B. Mills, **Seedsman, Box 105. Rose Hill, N.Y**

In writing, mention Gleanings

NEW STRAWBERRIES!

Most complete list of popular varieties in Michigan. Strong, healthy plants **FRESH DUG** and **GUARANTEED** to all parts U.S. and Canada. We also make a **Specialty of Choice Michigan Grown SEED POTATOES.** Send for descriptive CATALOGUE **FREE** and note what our customers in many states say about **our carefully grown and graded stock.**

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Kerosene Sprayers
is simple indeed. Kerosene emulsion made while pumping. 12 varieties sprayers, Bordeaux and Vermorel Nozzles, the "World's Best."
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Best Seeds that Grow!

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Leading American Seed Catalogue Mailed FREE to all.

A handsome **new book of 176 pages,**—tells the plain truth about Seeds, including rare Novelties which cannot be had elsewhere. Beautiful colored plates and hundreds of illustrations from nature. Gives practical information of real value to all who would raise the choicest Vegetables and most beautiful Flowers. **Write a postal card TO-DAY!**

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Every tree, plant or vine bought at Reid's **is well-rooted, vigorous, and true to name.** Every care is taken in growing to insure absolute certainty to the buyer. **Save one-half** on anything you need in the nursery line, by buying at Reid's.

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REID'S NURSERIES, BRIDGEPORT, OHIO.

SPECIAL NOTICES BY BUSINESS MANAGER

SUPER SPRING WEDGES.

The new springs for side compression in our supers are not quoted in the catalog. We have them in two lengths for the shallow and deep supers. Price 1c each; 75c per 100; by mail, 10c per 100 extra.

NO. 2 SECTIONS.

We are so much oversold on No. 2 sections that we have ordered over half a million from another manufacturer who has a surplus. Even with this help we shall not be able to furnish as many of this grade as are ordered.

NEW EDITION OF THE A B C OF BEE CULTURE

The present edition of the A B C is almost exhausted, and will be all gone before we can get a new edition from the press. We expect to issue a new edition during the summer. It is likely to be July or August before it is completed. In the meantime let dealers order sparingly, to make the present edition last till the new is ready.

MAPLE SUGAR AND SYRUP.

The season is favorable in this vicinity for maple products; and while we are not handling them to the extent we have sometimes done in the past, still we can supply those who have been accustomed to send to us for sugar and syrup. Choice syrup will be $1.00 per gal.; $9.00 for 10 gallons. Sugar at 10, 9, and 8 cts. per lb., according to quality; 50-lb. lots ½c less; barrel lots of about 300 lbs. 1 ct. less.

ADVANCING PRICES.

The upward move in prices of all metal goods is something phenomenal. Inside of three months the price of tin plates has advanced fully 25 per cent, and this affects the price of all articles of tinware. The advance in wire and wire nails has been even greater, figured in per cents, and the end is not yet. This advancing movement may be expected to continue for some time to come, for the lately formed trusts have every thing their own way, and competition will require many months to get started. The trusts are not primarily responsible for the advancing prices—they are simply taking advantage of a condition. Prices on iron and steel had gone so low that many old-time establishments for turning out iron products had to shut down because they could not compete with more modern plants where the cost of production was reduced to a much lower point. The enormous increase in demand in recent months has used up the surplus so that there is an actual famine in steel billets, and the plants now in operation running day and night can not make them in the quantities required to supply the demand. Supply and demand are the source of the upward move in prices, and the trusts will see to it that prices stay up as long as possible. This condition is not without its blessings, for thousands of workingmen have had their wages raised voluntarily by these large corporations, who are thus sharing their prosperity with their workmen.

THIN-BASE FOUNDATION.

The new foundation that is set forth in this issue we call "thin-base" to distinguish it from the former products of drawn foundation and deep-cell foundation, as well as to emphasize the particular feature that we've sought to accomplish. It is made in squares just right to fill a pound section, and there are 96 of these pieces for a 4¼ section in a pound box. We can furnish it also for the 4x5 or 3⅝x5 when so ordered. The cost of experimenting has been very heavy, and the cost of making, for the present, is no small item. We are furnishing the power and the sheeted wax, and paying Mr. Weed 50 cts. a pound for the first 1000 pounds, so that we are hardly getting more than cost when we sell it at $1.00 a pound. You can afford to pay this price for it in limited quantities to test; and if it proves valuable, as we have every reason to believe it will, the cost of making can be greatly reduced by a larger expenditure in machinery to turn it out more rapidly, and the price may be reduced to 75 cts., but not this season. We will furnish 7 or 8 pieces put up in a section, inside a carton, for 15 cts. postpaid; 24 pieces, prepaid, for 40 cts.; 48 pieces, prepaid, for 75 cts.; 1-lb. box, prepaid, for $1.25. By express or freight with other goods, $1.00 per pound, in lots of ¼ pound or more. We have in stock, ready to ship at once, about 200 lbs., and are turning out over 20 pounds a day, so that we hope to be able to supply it as needed, and we trust a large number will get sufficient to experiment with, and report after the season is over. The larger the number who do so, the more valuable the result in determining its real value and worth.

Special Notices by A. I. Root.

WANTED—SEEDS OF HONEY-PLANTS.

We are just out of fresh seeds of both spider-plant and figwort. If any of our readers have some seeds that have been recently gathered, so that they will be sure to germinate, we shall be glad to hear from them.

OUR NEW SPRAYERS.

Since advertising these at 60 cts. for the tin ones, and 25 cents more for the same made of brass, I have been a good deal surprised to see that three-fourths of our customers pay the 25 cts. extra, and take the brass one. And I think this is really a wise thing to do, for the brass one ought to last a lifetime. Another thing, although there is no end to these makes of cheap spray-pumps I believe ours is the lowest in price of any made all of brass; and at only $7.50 a dozen there ought to be a big demand for them during the coming season.

SOJA BEANS.

We have a nice lot of fresh seed. Pint, 10 cts.; peck, 75 cts.; bushel, $2.50. If wanted by mail, add at the rate of 8 cts. a pint for postage. I believe our experiment stations are all giving favorable reports of this new leguminous plant, and several have written us that the beans picked green, or even cooked dry, are not only sustaining, but really good, when properly cooked. This bean contains so much oil that no fat pork need be added when cooking. We also have a good stock of American coffee-berry, which is a small variety of the soja bean. Price: ½ pint, 10 cts.; pint, 15 cts.; quart, 25 cts. Its value for coffee need not be discussed now, for almost everybody has tried it, and, I might say, almost approved of it.

SEED POTATOES.

At one time I began to fear that potatoes were going to be low again this spring; but since the big freeze in February prices have gone up steadily, and at the present writing good table potatoes are quoted in the Cleveland market at from 60 to 65 cts. per bushel. This, you see, is about the same as our lowest prices on seed potatoes—$2.00 a barrel. As a consequence we are sold out of Carman No. 1, Mills' Prize, and State of Maine. Of the Monroe Seedling and Rural New-Yorker we still have a few left at $2.00 a bushel. White Triumph, Early Ohio, and Burpee's Extra Early, are also gone: but we have a very good stock of the following: Bovee, Thoroughbred, New Queen, Carman No. 3, and Manum's Enormous. For prices see catalog, which will be sent on application.

SORGHUM FOR STOCK; BEETS; STRAWBERRIES; CEMENT FLOORS.

The above is the title of a valuable little book by our veteran institute worker Waldo F. Brown. Price 10 cents. The article on cement floors is worth the 10 cents ever so many times over. It tells how to make substantial cement floors for stables, pigpens, sidewalks, around the well, or anywhere else. The directions are so plain that any one who owns a home ought to be able to do the work himself; and he tells you how to make a substantial floor at a comparatively small expense for material. A good many masons who undertake to do this kind of work waste material, and do not get a good job then, as I happen to know by experience. If you are going to do any work of that sort, or even have it done, this booklet may save you dollars.

The article on growing sorghum for stock, and also the one on growing beets, may be equally valuable. The directions for growing strawberries for home use are up to the very latest teachings, and it is boiled down into a small compass. As I read it through I kept saying to myself all along, "There, that is exactly as I would advise." May be friend B. will not feel greatly complimented at this; but if you will follow his instructions you certainly can grow strawberries almost as cheaply as you can grow potatoes. It may cost a little more to harvest them, but the children around almost any home will look after that part of it. We can mail the book from this office for 10 cents; or anybody who sends us a dollar for GLEANINGS can have the little book free of charge if he will just say so when he sends the dollar.

LEAFLETS ON GROWING CERTAIN CROPS.

Where a great many people are asking the same questions about different things, say sweet clover, cow peas, soja beans, etc., we have been in the habit of having leaflets printed in order to answer questions. About this season of the year there is always a great demand for these leaflets. I find we have at present in stock leaflets or circulars in regard to alfalfa, crimson clover, sweet clover, dwarf Essex rape, soja beans, coffee-berry, the new onion culture, or starting onions under glass. We have also a little book on Japanese buckwheat, price 5 cents, or sent free to every one who purchases seed. We have also "Forty Years in Growing Sweet Potatoes," by Waldo F. Brown, price 10 cents only; or sent free to every purchaser of sweet potatoes or plants, or to any one who sends a dollar for GLEANINGS, mentioning at the same time that he would like the sweet-potato book. If you want larger books on growing crops, look over our book-list in our seed catalog.

KIND WORDS FROM OUR CUSTOMERS.

I am glad you did not stop my paper, as I like it very much. I believe the millennium would not be so far off as it is now if there were more such clean and nice papers as yours. Thanks for the stand you are taking against tobacco, and also the humbug medicines, and all sorts of swindles. H. J. BROMWICH.
Angola, N. Y., Feb. 24.

Inclosed find order for GLEANINGS and *Farm Journal*. Continue subscription from date of expiration of last subscription. Although I can not be classed as a veteran, yet I have not missed a single issue since I first learned of GLEANINGS. To say that I appreciate it is but to say that I have all the volumes bound in half morocco. H. C. KLINGER.
Oriental, Pa., Feb. 14.

Your notice is at hand in regard to advance subscription for GLEANINGS. I can not afford to lose it, so I am going to make sure of it for three years, so please find inclosed money order. I may say that I like GLEANINGS very much; and, although so far away, it comes to hand very regularly. I often wish The A. I. Root Co. were not so far away.
HERBERT SMITH.
Moss Glen, Recherche Bay, Tasmania, Nov. 12, 1898.

I like your article on giving employment instead of money to the needy or improvident. I have often noticed here that those who are needy are generally those who play or drink during the sunshiny days, and make no effort to lay up a few dollars for cold or rainy days. With the exception of sick people, it is almost a waste of time to extend help to the "drones," for they soon come to look to you for assistance in time of need. CHIP HENDERSON.
Murfreesboro, Tenn.

THE NEW FENCE SUPER.

In regard to those fences bought of you last year for 100 hives, it is one of the best improvements since I began the bee business, fifty years ago. Last year I had the best comb honey I ever raised. I think bees will commence in sections quicker, work the outsides of the crate just as well as the middle, and, best of all, bees do not travel-stain the combs. Make me enough for fifty hives more, about 400. C. M. LINCOLN.
Rupert, Vt., Dec. 18.

DIVINE HEALING; MORE ABOUT DR. DOWIE.

Mr. Root:—Several years ago I lived in Chicago and attended Dr. Dowie's church, and was employed by him to finish his Tabernacle Zion No. 2. As he employs no person who is not a Christian, and no one who uses tobacco, I had not much competition, and was with him a long time. Being desirous at the time you should be healed (for I had been benefited so much by Our Homes), I sent you some copies of *Leaves of Healing*. As I never heard any thing from you in GLEANINGS on the subject I supposed you were opposed to divine healing (as many good Christians are). But on receipt of GLEANINGS this week, and reading Our Homes, I find you occupy the right grounds; that is, you are willing to be led by the Spirit. Now, Bro. R., I have prayed that the Spirit might direct me to say the right things to you.

I shall answer your article, but not in the order it is written. First, you say no person ever told you that *all* are not healed. Dear Bro. Root, from my own personal observation there is not one in ten healed, if the proportion is even that; but that does not prove any thing against divine healing. Not one in ten who hear the gospel of salvation is saved. I agree with you, Bro. R. I can not indorse Dr. Dowie in many things. The gift of divine healing was not transmitted from the apostles from age to age until it rested on Dr. Dowie, but is for *every* child of God who by faith is filled with the Spirit. I can not indorse him in dispensing with means in *every* case, such as hot or cold water. When we have some simple aid that God has provided, let us use it; but *no drugs*. Dr. Dowie should not abuse the churches as he does. Christ would not do that. One great secret of success in healing is to get the sufferer to accept the Bible truth that all sickness is inflicted by *Satan*, and that it is the will of God that we should be well; that whatsoever we ask in his name, the Father will give. Thus by calling to mind the promises, and believing it is Christ's will that we should be made whole, our faith should be strong *before* we pray. Expect the healing. You spoke of a "glimmer" of faith *after* praying; it should come *before* praying; then pray definitely; don't say, "If it is thy will," for in so doing we waver, and fail of healing. Dowie always lays on hands; but it is our privilege to live so close to God, by being filled with the Spirit, that he will heal any time.
Muncie, Ind. J. M. FLETCHER.

CONVENTION NOTICES.

The next convention of the U. S. Bee-keepers' Association will be held in Philadelphia, Pa., commencing Tuesday evening, Sept. 5th, and closing Thursday evening, Sept. 7th. Particulars in regard to railroad rates, etc., will be given in time. A. B. MASON, Sec.
Sta. B, Toledo, O., Feb. 27.

Blackberry = plants for Sale.

Snyder and Taylor's Prolific. The two most hardy and productive blackberries for the North. Plants from young and healthy plantations. Plants for freight shipments carefully packed. Price, $7.00 per 1000; $1.00 per 100; 1 dozen, by mail, 25 cts.

CHARLES L. TODD,
Hartwick Seminary, - - Otsego Co., N. Y.

DO YOU WANT EARLY QUEENS?

We can supply you with the choicest of Tested Italian Queens for $1.00 each. Orders filled by return mail. Safe arrival and satisfaction guaranteed.

SEND FOR PRICE LIST.

J. W. K. SHAW & CO., - LOREAUVILLE, LA.

CASH FOR BEESWAX.

Will pay 26 cents per pound cash, or 28 cents in trade, for any quantity of good, fair, average beeswax, delivered at our railroad station. The same will be sold to those who wish to purchase, at 33 cents for *best selected wax. Old combs will not be accepted under any consideration.*

Unless you put your name *on the box*, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO., Medina, Ohio.

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Winter Losses....................275

Honey Column.

CITY MARKETS.

Columbus.—The honey market here is working into better shape. The demand is not large—neither are the supplies; but the stock arriving is moving out in a steady way and working toward a better basis of values. At present, fancy, 12½; No. 1, 11½; amber, 10; dark, 8.

Columbus Commission and Storage Co.,
March 23. Columbus, Ohio

Detroit.—Fancy white comb honey, 13@14; No. 1, 12@13; fancy dark and amber, 10@11; off grades at buyer's prices. Extracted white, 6½@7; dark and amber, 5@6; beeswax, 25@26½.

March 22. M. H. Hunt & Son, Bell Branch, Mich.

Cleveland.—We quote our honey market to-day as follows: Fancy white, 13@14: No. 1, 12@13; fancy amber, 10@11; No. 1 amber, 9@10. Supply of white honey very light; demand good; dark grades moving slowly.

A. B. Williams & Co.,
March 20. 80-82 Broadway, Cleveland, Ohio.

Philadelphia.—As the spring advances, the demand is pulling off for honey. The stock of comb honey is being worked off, yet there is sufficient for the demand. We quote fancy white comb, 15; No. 1, 12; dark, 8; extracted white, 6; amber, 5; beeswax, 28. We are producers of honey—do not handle on commission.

Wm. A. Selser,
March 22. 10 Vine St., Philadelphia, Pa.

Chicago.—There is no change of consequence since our last quotations Stocks of the best grades of white comb are being reduced, and receipts are light, with some accumulation of the off grades, there being additions to those grades from time to time. Fancy white, 13; No. 1, 11@12; ambers, 9@10; dark, 7@8; extracted white clover, 8; other kinds, 7; amber and dark, 5@6; beeswax, 27@28.

R. A. Burnett & Co.,
March 21. 163 South Water St., Chicago, Ill.

Springfield.—We quote our market to-day as follows: Fancy, 14@15; A No. 1, 12@13; No. 1, 10½@11 buckwheat, 8@10. Demand fairly good for fancy, and limited supply.

Perkins & Hatch,
March 22. Springfield, Mass.

Boston.—Our honey market is as follows: Fancy white comb, 13; A No. 1, 12@12½; No. 1, 11@12; No. 2, 9@10, with a fair demand; no call for dark. Extracted—supply very light; good demand; white, in 60 lb. cans, 7½; light amber, in bbls, 7. Beeswax—very light stock; good demand; 29c per lb.; advise shipments.

Blake, Scott & Lee.
March 27. 57 Chatham St., Boston, Mass.

For Sale.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60 lb. cans for $7.20.

The Arkansas Valley Apiaries,
Oliver Foster, Prop.
Las Animas, Bent Co., Colo.

Wants and Exchange.

WANTED.—Handy man who understands work in apiary and can handle bees for comb and extracted honey. State age, and if have family. No liquor or tobacco. I am an expert, and will do the managing. Address M. P. Rhoads, Las Animas, Col.

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J. A. Green, Ottawa, Ill.

WANTED.—Permanent situation with some western apiarian or ranchman. Prefer mild climate, am young; work cheap. John Ruenzi, St. Charles, Mo.

WANTED.—To buy a second-hand shingle-mill; also a circular-saw mill. Address

Wm. S. Ammon, 216 Court St., Reading, Pa.

WANTED.—To exchange one thousand wide frames with tin separators, for something I can use.

C. J. Baldridge, Kendaia, N. Y.

WANTED.—Your address for a free copy of my book on queen-rearing.

Henry Alley, Wenham, Mass.

WANTED.—To exchange supplies, nursery stock, or seed potatoes, for printing-press, honey, or wax.

O. H. Hyatt, Shenandoah, Page Co., Iowa.

WANTED.—To furnish my hives and sections, to careful men, for a share of No. 1 clover honey. Also 4 sizes of the prize comb-honey cartons, and 68 pages of "Facts about Bees," for 6 cts. in stamps.

F. Danzenbaker, Washington, D. C.

WANTED.—To exchange man-trailing bloodhounds, foundation-mill, and bone-mill, for L. hives in flat. Elias Fox, Hillsboro, Wis.

WANTED.—To exchange 100 colonies of Italian bees in 8-L.-frame hives (at $3 00 per colony) for extracted honey, seed potatoes, or something I can use.

A. W. Gardner, Centreville, Mich.

WANTED.—To exchange new and second-hand bicycles, bicycle parts, or sundries, for Barnes saw or engine. Twin City Cycle Co., La Salle, Ill.

WANTED.—To exchange for extracted honey, queen-rearing hives (new), or cash, for honey. Root's goods for sale here. G. Routzahn, Menallen, Pa.

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GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
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STRAY STRAWS FROM DR. C. C. MILLER

"DAME NATURE I love, and I believe she loves me," says A. I. Root, p. 237. I have a very warm affection for the old lady, but I have some doubt about the feeling being reciprocated, from the merciless way in which she whacks me whenever I break any of her laws.

IN TALKING about travel-stain, one thing seems mainly left out of view. My bees fill sections and seal them snow-white; then if left on the hive long enough they darken them. They're capped white, then I suppose the bees carry up dark matter to put on the surface, but not, I think, with their feet.

THE WORD "SIC" is sometimes used to show that there is something wrong about the word after which it is written, or something wrong about the way the word is used. As used by Critic Taylor, of the *Review*, it seems to mean that the word is a good English word as used, only he hasn't yet learned it.

"IN ONE OF RAMBLER'S letters he speaks of the cherry-trees of Oregon as being a great place for bee-men."—GLEANINGS, page 212.—Do all the bee-men out there roost on cherry-trees? [That's another case of "locality," doctor. The bee-keepers should be in the "locality" of the trees, not in 'em—till the cherries are ripe.—STENOG.]

IT DOES SEEM as if that thin-base and thick-wall business, p. 218, was a step in advance, but I'll not gratify the editor by saying so. A man who calls a worker "he" ought not to be encouraged. [Yes, I am satisfied that the new thin-base foundation is going to solve the problem of no gob in comb honey. The work of experimenters in the past all points in the same direction.—ED.]

J. E. CRANE, p. 214, is in line mainly, but not entirely, with Cheshire. When it comes to the rock-bottom question, "What causes the dark color in combs?" they are radically apart. Mr. Crane says, "The brown cocoon is left, and gives its color." Cheshire says the color comes from the undigested contents of the bowels of the larva being plastered on the wall of the cell. Both agree that the dark color primarily appears in the cell where a young bee is reared.

IN ORDER to break the news gently, I may say that I'm getting ready to report a case of bad wintering. I'd give $50.00 for a bright day at 50° on or before March 20. *Later.*—March 20, 12° above zero! [I am afraid there is many a bee-keeper in your predicament. This continued cold weather during February and March scares many—at least puts them in a position so that they hardly know what to expect.—ED.]

MR. EDITOR, if you get *Apis dorsata* here, please keep her chained until you *know* she can be domesticated, and will not merely use up nectar that we need for our hive bees. [I do not worry about *Apis dorsata* taking up the nectar that would otherwise go to our hive-bees; neither do I fear that there will be any other form of disaster follow their introduction. If they are migratory, and appear incapable of being hived, I can not see even then that they can do any harm.—ED.]

HE, SHE, OR IT? You may "he" the worker all you like, but I prophesy that in ten years "Stenog" will have instructions to change to "she" every "he" of that kind sent in. [Why is not *it* better than the other two? Functionally the worker-bee is not capable of reproducing its own kind—never was, and never will be. Indeed, it has been styled, for ages, a "neuter." Then why not call it *it*, and thus avoid either horn of the dilemma. There seems to be about as much good authority for *he* as for *she*, and no objection to *it*.—ED.]

W. S. PENDER says that, instead of putting sheets of foundation in the usual way, he cuts the sheets in two and hangs it t'other way, and then it doesn't stretch. Does that mean it stretches more readily the way it has been already stretched? [It is true, I think, that foundation stretches less when hung the opposite way to what it is ordinarily supported, than when it is fastened in the usual manner.

We are just planning to reverse the hang of the cells on our rolls, because we know it will be an improvement to have them the other way.—Ed.]

Is that soy bean, p. 239, worth any thing for honey? and is it the thing that is used to make flour that diabetic patients can use? [Yes, doctor, the soy bean does produce honey; but, as with many other plants of that class, sometimes the bees work on it and sometimes they do not. All of the leguminous plants, as a rule, are honey-producing. In the Old World the soy bean is much used for food; and just now attention is being turned to it in this country. Cooked green, like green peas, they are said to be delicious; but, to tell the truth, I have never tried them in that way.—A. I. R.]

Foundation made on the Rietsche press will not stretch at all when brood-frames are filled without wiring, says M. Devauchelle in *L'Apiculteur*. R. Pincot says the same thing in *Bulletin de l'Aube*. The explanation is that the wax, not being sheeted, has its particles take their natural places on cooling, while the stretching on the cylinder weakens the foundation, and leads to stretching and breaking down. [Foundation made on the Rietsche press, as it will be made by the average bee-keeper, will be much heavier per square foot than that ordinarily made on rolls. In proportion as it is heavier, in that proportion it will offer a greater resistance to stretch; but weight for weight, per square foot, I can not believe it is any better than the ordinary rolled foundation.—Ed.]

So, Mr. Editor, you were surprised I did not find out how much hotter boiling honey was than boiling water, page 233. Now look here. When *you* couldn't find out—*you*, at the place thermometers come from, you at the fountainhead of temperature, the place whence radiate light and heat, what could you expect from a lone, defenseless, private bee-keeper, away out in the wild West? You oughtn't to hint at such a thing from me, although you might expect it from an ex-experimenter. [In spite of the fact that we once had a big stock of thermometers, we did not have on hand any that were more serviceable than those you have right in your own house. But I found out more than you and Taylor, at all events.—Ed.]

On reading that bright way of straightening tile, p. 239, and the nest-egg business, p. 241, it made me feel sad to think A. I. Root rode the bee-keeping hobby so fiercely that it threw him off. If he had been content to ride more slowly, he would now spend more of his time thinking up bright things for bee-keepers, instead of nosing around in tile-drains and hens' nests. [Now, doctor, that is real mean of you to talk about your old friend in that way. Bee-keepers can not live on honey alone; and by the way the rest of you keep discussing and arguing about this and that in bee culture (that has been discussed for forty years), I should think you would be glad to have somebody, who is able to think up bright things, look after the interests of bee-men and their families outside of the regular bee-business.—A. I. R.]

That Michigan law, p. 233, reads a little loosely in two spots. Does section 1 mean the governor shall appoint a man of his own selection when the bee-keepers recommend him to make such appointment (as it reads on the face of it), or does it mean he shall appoint the man recommended by the bee-keepers? In section 3 it isn't as clear as it might be, of what the inspector is to be "sole judge." [It does not seem to me that it would make any practical difference whether the governor appoint the man recommended by bee-keepers or whether they appoint the man themselves. While there is a slight difference, so long as the selection meets the approval of both parties I would let the bill stand as it is. There is hardly any law (and I speak advisedly on this point) that is perfect in its wording.—Ed.]

On reading that reply to H. K. J., p. 230, I am moved to ask, merely as a question, with my hat off and a most apologetic bow, whether one good time to Italianize might not be about the time many new governments are formed and new rulers inaugurated, say about the middle of the honey season. [Yes, that is a good time to Italianize; but that time of year is very limited—generally not more than two weeks; and if one wants a queen he is quite liable to want her outside of that limited time. If a colony were working in the sections, and doing nicely, I would not think of disturbing their good work by attempting to introduce a new queen-mother. And then, is it not true that introducing young queens before the honey-harvest will have a tendency to keep down swarming, providing that queens removed are two years and over in age?—Ed.]

"If a scientist boils his foul-brood germs in beef gelatine, or pure-culture fluid, the specific gravity of the gelatine will be about the same as that of honey," says the editor, p. 234. I'm afraid that won't help us. If I am correct, the spores were heated *to 212°*, or else heated in culture-tubes which were kept in boiling water. I'm off the fence, standing straight up beside Bro. Taylor. Whenever I see—and I doubt if I ever shall see—sufficient reason for it, I'll take to the fence again, and then Bro. Taylor will make unpleasant remarks about my hasty change of opinion. Let's be thankful that the shorter boiling will do, even if Bro. Taylor does belabor us for fence climbing. [I am not going to climb any fences just yet. The fact is, Mr. Buchanan boiled some of his honey a good deal longer than fifteen minutes, and did not kill the foul-brood spores. Here was an actual case; and if a temperature of 212 did not kill those germs after two hours' boiling on the part of the scientists, I very much doubt whether fifteen minutes' boiling at a temperature of 240 or 250, say, in honey, would do any more. I still insist that I am safe in staying on the long-boiling side of the fence; but I am not safe (until I have better information than I now have) on the other side. If the situation had been reversed — that is, had the average bee-keeper considered two hours insufficient to kill the foul-brood spores, then if I had had the evidence from two or three that fifteen minutes' boiling was enough, and had flopped over to that position, then I might with fairness be accused of changing my mind hastily. I chose to take the safe side of the fence, and still think I am justified in holding to that position — especially so as Mr. Taylor says I have a following who will take my advice. I have written to Mr. Thos Wm. Cowan, and am waiting to hear from him on this point, for I know he will approach the subject from the standpoinnt of a bee-keeper and a scientist.—Ed]

PICKINGS
FROM OUR NEIGHBORS' FIELDS.
BY STENOG.

You never hear a bee complain,
And this sad world bewail;
But if she did, she could unfold
A very painful tale.

The lines above were sent me by J. L. Peabody, of Denver. They were read by him in reply to a toast at a church meeting in that city—"Drones in Plymouth Hive."

PROGRESSIVE BEE-KEEPER.

Somnambulist and others have my hearty thanks for kind words concerning myself. For any display of genius, however, a department of this kind offers about the same inducement that the edge of a board does to sleep on.

* * *

F. L. Thompson writes a long article on facing honey, and I must say it is good. If I were to give the spirit of his sermon it is this: The seller should let the buyer know as much about the article sold as the seller himself knows, inside and out.

* * *

For the production of extracted honey, H. H. Hyde says one must have a strong colony, No. 1 queen, plenty of honey, lots of room for egg-laying. Mr. Hyde says queen-excluders are worse than useless—the greatest curse ever put on bee-keepers. Whew! That seems to contradict what a host say about excluders. Can't "locality" be used as a scapegoat here?

* * *

The poet of the *Progressive* goes too far when he speaks about the churches stoning women. The intimation is not true. In the case cited, I have no doubt the reformed woman would fare as well in the church as at the hands of Mrs. Mitchell if she should find her husband in company with said woman. But Mr. M.'s lines are, as a whole, good. His only defect is a strong bias against Christianity.

BEE-KEEPERS' REVIEW.

C. Davenport is breeding out Italian blood in favor of the German brown bee. He thinks the latter caps the honey whiter, besides having some other redeeming traits that the Italians do not. His views will excite much discussion. Mr. D. makes a specialty of honey.

* * *

"Blame where you must,
Be candid where you can."

It strikes me if all bee-writers were a little more *candied*, instead of being so very *candid*, there would be less fur in the air. Why can't hives and machinery be discussed as calmly as the weather? A change of mind ought to occasion no censure and need no apology. Minds worthy of the name always change on evidence.

* * *

T. F. Bingham contributes a good article on how to keep bees good-natured. Smoke is one of the means he uses. He says no one should go among bees without a cape made of cheese-cloth to fall over the neck and shoulders, to keep bees out of the hair. A bee once rendered vicious will always stay so. He finds a pair of old gloves, with the thumb and first finger cut off, a great help in handling bees. They also protect from the sun's heat. He kills bees that follow him around.

* * *

A new department seems to be a leading feature in bee-journals now. "Good Things from Other Journals" is the name of the one just started in the *Review*. It is under the management of our genial friend Dr. A. B. Mason, of Toledo. He has 2¾ pages as a starter. Dr. Mason is too well known among bee-men to need any support from me; but what he says between the extracts is good. Here is something that is true: "There is so much that is good in the different bee-journals that it will be no easy task to select what is *best*."

* * *

R. L. Taylor criticised Dr. Miller for using the expression, "bring to a boil." The doctor defends his usage by referring to the Standard Dictionary, the latest and by far the largest work of the kind ever printed. Mr. Taylor objects, saying no other dictionary makes any mention of "boil" as a noun in this sense (heating water). Dr. Miller is entirely right. Dictionaries record current usage of words just as newspapers record events. A paper of to-day recording a fire this morning has more weight in proving the disaster than all other papers printed yesterday. But *all* dictionaries would speak of "*Christian* behavior" instead of *christian*, as the adjective is derived from a proper noun. But that may have been a misprint on Mr. Hutchinson's part. *Sic* 'em, Tige!

AMERICAN BEE JOURNAL.

Mr. Secor has the following line:

May the strength which I gather while Day's in the West.

I get no meaning from it, as I do not know what Mr. Day went west for.

* * *

J. M. Hambaugh suggests the election of Mr. Dadant (probably the younger) to the Illinois Legislature, in order to work for a foul-brood law. Some States, I am told, make persons ineligible to that office unless they were born in the United States. If that does not interfere he would honor such a position.

◆

Dr. Miller thinks catalpas are not of much value for honey, although bees are plentiful on them in the spring. Bees swarm on them here, but the blossoms, I should judge, are destitute of honey.

◆

Mr. Getaz begins with a serious investigation of the subject of "locality." He admits it sounds like a joke, for, of late years, this word has been used to account for every irregular and strange antic the bees cut up, a good deal as some folks lay all their trouble to the weather. He shows plainly how much his management in Tennessee must vary from that of a man living in the middle of New York.

CALIFORNIA ECHOES

BY J. H. MARTIN.

I would say to Bro. Wilkin, in reply to his remarks upon page 95, that I prefer the slatted zinc honey-board for the reason that it at all times has the proper bee-space, and the fact that he has to peel it off from the hive is a sufficient condemnation of it. It sags down, holes get stopped, and unless there is more care exercised than by the most of the California bee-keepers there will be many of the bees killed when putting them on the hives. In fact, there is no end to the evils of the plain sheet-zinc honey board.

The Chamber of Commerce of this city is an up-to-date organization, and at this writing they are considering the feasibility of producing rain by artificial means. Prof. T. S. C. Lowe, the great balloonist of the Federal armies during the rebellion, and now a resident of Pasadena, has given the Chamber many valuable suggestions in the line of rain-making. Los Angeles spends many thousand dollars nearly every year upon a fiesta, which is ninety per cent foolishness. Prof. L. says that an equal amount spent in an effort toward rain-making would result in much good. He says it is not necessary to bombard the skies by firing cannon. The release of certain gases and the creation of smoke will answer as well. I hope the experiments will be tried, and hope to report the results a little later.

I wish you would not allow Dr. Miller to say so much about having hives with the worse than useless hand-cleats clear across the ends of hives. Of course, there is no objection to the doctor using such out-of-date things, but what is the use of allowing him to harp and harp upon it? Say, doctor, if you want to get such a tight grip upon your hives, why not put on handles such as they use on coffins? Don't allow yourself to use that pug-nose affair recently illustrated in GLEANINGS. Get something substantial, as I have recommended, and then stop harping about it, and there would be a great relief to a long-suffering community who believe that simple hand-holes are a good-enough handle to a bee-hive.

Not long ago I received a honey-leaflet from parties in Denver, and it had a beautifully illuminated cover, and I immediately recognized the design and the coloring as one of my long-lost children. I was pleased to find a good use made of it, and perhaps the Root leaflet would be more effective with that or some similar design. I fail to see where it would be improper to use artistically illustrated honey-leaflets with as much vigor as that used in advertising pickles or chow-chow.

Bee hive manufacturers on this southern coast are preparing for but not anticipating much business during the coming season. There will be any quantity of empty hives in every apiary. We hear of quite a number who have nothing now but empty hives. Mr. Madary, supply-dealer of Central California, put in a minute's appearance at the State association meeting in January. He expects a fair trade in his locality. Alfalfa yields honey every year, for it is under irrigation. The amount of the honey crop is, however, dependent in a certain measure upon the atmospheric conditions, and these conditions are better after a normal rainfall.

The moving of bees is still a topic of interest to our bee-keepers. Where to move is the question. A Santa Monica man is about to move a wagonload of bees into Inyo Co. This involves a haul by team across the Mojave Desert a distance of 150 miles. I do not envy this man his job.

Mr. W. T. Richardson and wife, who spent several months in the East, have returned to his ranch and his bees in the Simi Valley. He reports better bodily health, but a sickly dry-weather feeling when he considers bee-matters. A goodly number of his 1200 colonies are still on deck, but a good amount of feed will be necessary to carry them through the season, provided it does not rain. Our conversation in this country is regulated by that proviso.

Messrs. Wilkin and McIntyre will move a large number of bees into the Bakersfield country. They think it will pay them, even if they do not get much honey, or merely enough to carry their bees through to another season.

Recently a young bee-keeper was holding up to ridicule some ideas of bees and bee-keeping entertained by his best girl, when she exclaimed, with some spirit, "Well, Charlie, I have lived through two dry winters in this country to some purpose. I am not so green as I look."

In sending queens to Jamaica by mail, a customs declaration *is not* necessary. Some parties sending us queens have made declarations, thus causing delay at both ends of the route. JAMAICA BEE-SUPPLY COMPANY.

Mandeville, Jamaica, W. I., Nov. 9.

General Correspondence

LARGE HIVES FOR COMB HONEY AS WELL AS FOR EXTRACTED.

The Laying Capacity of Queens Adapted to Large Hives; Position of Doolittle and Hutchinson Criticised; Relative Value of Large and Small Hives for Wintering.

BY CHAS. DADANT.

As I have been the promoter of large hives, not only in America but especially in Europe, I desire to add some explanations to the articles of my son.

When I came from France to this country, 36 years ago, I had already owned bees and studied bee culture in the books and in the apiary; so I was convinced that, if I resided outside of a city, I could easily live and sustain my family on the product of the bee business.

The friend, a Frenchman, who had given me some information about this country, and to whose home I came, had four or five colonies of bees in box hives. One of these hives was immense, made of lumber 18 inches wide and 2 feet high. The combs were prevented from breaking down by two sticks intersecting one another. To take out the surplus the board of the top was unnailed, and the honey was cut out after sending the bees below with smoke

My friend had begun by buying this large hive, and had from it a crop of honey every year.

The number of bees in this hive was so large that you could see as many workers going out of it as out of the three or four other hives together.

I had already noticed the superiority of large hives in the old country, and my persuasion was enhanced by observations in other apiaries around me here. A few years later I went to the auction sale of a farmer, to buy a cow. There were also six different-sized box hives. It was in March. The temperature was cold, so I tapped every hive with my finger to know whether they were alive. The bees in five of these hives answered to my tapping, with a short trill; the other, which was very large, answered bo-o-o-o-m. I was fixed. I bought this large hive for $7.00, but I did not care for the small ones, each of which was sold for three or four dollars.

At that time I was already transferring box hives into movable frames. This large hive, after having been transferred, gave me, the same season, 160 lbs. of comb honey, which was sold at 27 cents a pound in St. Louis. So this colony paid, in the same year, for the cow bought, $35.00, and for itself. Of course, this colony had been transferred into a large (not Quinby but King) hive; for as I had to save every cent I could I had bought first the book of King, since its price was but 50 cents, instead of $1 25 or $2.00, the prices of the books of Quinby and Langstroth.

But I had already enlarged the King hive to twelve frames instead of ten, to give enough space to the queen; for, after noticing the superiority of large hives, I had made an observatory hive, and noticed that a queen lays about six eggs per minute, 360 per hour, and 3600 in 10 hours, 75,000 in 21 days. A little later, after having bought the Quinby book I made some Quinby hives, enlarging them also.

These large hives gave me excellent results in comb honey, for the extractor was not in use yet. Besides, in the beginning extracted honey was difficult to sell, as it had to compete with glucose.

A bee-keeper, living not far from here, having been told by a neighbor that I had bees that gathered 100 lbs. or more per colony, answered that I was a braggart. His bees did not give him more than seven pounds per colony, on the average. Of course, he had small hives. I told my neighbor to invite this bee-keeper to come and see my bees. He came, and I have never seen a man more amazed than he when I raised the cap of one of my hives to show him three boxes full of honey piled upon one another. These boxes were six inches high, and of the size of the top of the hives. For years we raised comb honey in frames six inches high, joined together to make boxes, Adair fashion, with glasses at both ends, before using the extractor.

CHAS. DADANT.

We now raise extracted honey only, not because we can not produce comb honey with our large hives, but because extracted honey does not need so much work as comb honey, and we have some other business on hand.

While the large ten-frame Quinby hive is our hobby, the favorite hive of Doolittle is the small nine-framer of the Gallup hive.

Let us suppose that Doolittle has a queen able to lay 3600 eggs per day in one of his nine-frame Gallup hives, of which no comb contains more than 4600 cells, or for the nine, 41,400 cells. Every one of these cells will be occupied by this prolific queen in less than twelve days. Then the queen, unable to find empty cells for nine days, will be dissatisfied and will excite her bees to swarm.

Of course Doolittle, who is always watching his sixty hives, will cage the queen for ten or twelve days, to punish her for doing her work too well; so by his method he increases his work, instead of taking advantage of the value of his best queens.

Let me add a few remarks: The nine Gallup frames, on which the colonies of Doolittle are confined, can not have 41,400 empty cells to be used by the queen, for the workers always take care of storing pollen and honey as near the brood as possible. Then if one of these nine combs is filled with victuals the queen will have but 37,400 cells, or room to lay but 1800 eggs per day instead of 3600; hence the population will be smaller yet.

Mr. Doolittle writes that the queens in his ten-frame Langstroth hives did not lay more than enough to fill nine Gallup combs. I think that the cause of so poor a laying was the small number of bees in the hives in early spring. A large population and a large provision before winter give a large stock of workers in spring; but these requisites are difficult to obtain with small hives.

"But," says our friend Hutchinson, "if your queens lay so many eggs they are soon overworked, and die." I can not see why our queens would die younger than those which are provided with small hives. The queens doesn't lay at will. The eggs come out when they are ripe, and the queen can not stop their exit.

If you drum a swarm from a box hive you can ascertain whether the queen is with the bees by putting a black cloth under the swarm. After two or three minutes, if the queen is with the swarm you will see, on the cloth, the eggs dropped by her, as she was unable to keep them; and not only these few eggs are lost, but during the twenty or twenty-five minutes of your drumming she lost her eggs, being unable to keep them or to deposit them in the cells, on account of the trouble caused by your drumming. It is the same when a queen goes from a comb to another in search of empty cells.

"But," adds Mr. Hutchinson, "Mr. Doolittle has experimented on the matter. A queen which had laid 5000 eggs per day, in the whole season, was unable to live more than one year."

This report of Mr. Doolittle's reminds me of the Englishman who, going from London to Paris, arrived by boat at Calais, before sunrise, and went directly to the stage coach going to Paris. In Calais he saw but one woman, and she was cross-eyed. Then he wrote in his diary: "In Calais the women are cross-eyed." We have never made experiments on one or two hives, for such experiments prove nothing, but on 30 or 40 of each kind of hives during several years, to be sure of the result. If our queens were killed by overlaying, not in one but even in two years, we should lose on the 80 colonies at home more than three queens every month; and during the six months when there are no drones to mate the young queens, fifteen of our colonies would die every year; yet our winter losses, although we winter our bees on their summer stands, do not exceed two or three per cent on an average, in our home apiary. The death of a queen in winter is the death of the colony.

Although this winter was very hard on bees, my son wrote lately to the editor of the *American Bee Journal* (page 121, Feb. 15), "We have just had a good day for the bees. The colonies are strong. There is next to no loss," etc.

For twenty years or more we had a number of colonies in ten-frame Langstroth hives, in the same apiary, with about the same number in eleven frames, Quinby. We were then selling queens, and colonies of Italian bees, and our customers wanted mostly Langstroth hives; but the comparison, in the quantity of honey produced and in the losses in winter, was so unfavorable to the Langstroth hives that we transferred their bees to our large Quinby hives, and we have now these old hives rotting behind one of our shops. Their number will increase this summer; for when our friend Hambaugh went to California three years ago we bought of him his hives and fixtures, and left them on their place at Spring. We have there a good young man to take care of them. He wrote us lately:

> Have lost 12 colonies — 10 in Langstroth hives. All died with plenty of honey but two. The honey was too scattered.
>
> Spring, Ill., Feb. 24.

We had there 80 colonies — 50 in Quinby eleven-frame hives, and 30 in Langstroth ten-frames. So one-third of the colonies in Langstroth hives died, while only one in 25 in our large Quinbys died. Do you not think that such a comparison is in favor of the large Quinby-Dadant hive?

Of course, if our bees in Langstroth hives had been wintered in a cellar this loss would have been avoided; but how could we have a cellar in every one of our five outside apiaries? Besides, cellar wintering is not always successful. When we built our house we partitioned a part of the cellar to winter bees in it; yet we found it difficult to keep a uniform temperature in it during the whole winter, and we noticed also that the bees were not as healthy in spring as those wintered on their summer stands; so we resolved not to winter them any more in the cellar, and this wintering outside of our large hives gave us the best results.

Hamilton, Ill.

[Mr. Dadant is, if I am not mistaken, the oldest living veteran we now have in our ranks, among those who have been prominent before the bee-keeping world. According to Stenog, he will be 82 years old next May, and yet at this fourscore mark he is still vigorous in mind and body.

The Dadants can point with pride to the fact that their assertions are not based on experiments conducted on a small scale, but upon the results of testing several large apiaries with large hives for a period of many years. We can not doubt their word that they have produced more honey in such hives. And then the elder Dadant says this experience of theirs is borne out by the bee-keepers of France, who are largely following the Dadant system. The results, then, summed up, seem to be little or no swarming, very few winter losses, and more honey. If these things are facts, and the Dadants say they are, I do not really see how argument can disprove it. From the standpoint of a supply manufacturer, wish that they were not right; but I get a good deal of solid comfort out of the notion, that almost amounts to a conviction, that two eight-frame hives will accomplish the same results, and yet permit of the advantage of handling large hives in halves rather than in a big unliftable whole. I say I get comfort out of the thought, notwithstanding a kind of lingering fear that those big brood-frames, with their cards of brood, may make a difference in actual results.—ED.]

SECTIONS WITHOUT SEPARATORS.

How to Produce Comb Honey Without Separators or Fences.

BY DR. C. C. MILLER.

I received a letter from W. B. Ranson, protesting in somewhat vigorous terms against the use of so much paraphernalia in working for comb honey, insisting that, if it was such a gain to allow free passage in supers by the use of fence separators, it would be a still greater gain to dispense altogether with separators, and that, if the same amount of brains that had been used in trying to decide just how such things should be made had been used in trying to find out how to get straight sections without any separators at all, we would now be further on than we are.

In support of his view, and drawing from his own experience, he wrote:

"In 1897 I ran for all comb honey, and used a few bait-sections, and no separators; when I cased up the honey I had 21 bulged sections to the 1000. In 1898, for the honey I have just finished casing I used bait-supers *full of old* sections, with combs and honey. This time I still used *no separators*, and had only 3 bulgers to the 1000. Now, doctor, if you will, next season take some T supers, fill them with sections *open all around* (four beeways), and leave out separators, and let the bees have free access from end to end and side to side, level up your hives nicely, and when the bees are working freely in bait-supers put those supers on; and if the honey-flow is on, the combs will be built straight and nice. The main point is to have the combs in all the sections built down at the same time, and this requires plenty of bees and something to work with."

As few as 3 or even as few as 21 bulgers to the thousand is more than I should expect to reach if I discarded separators, even with four beeways and every thing made level with a spirit-level, leaving it a question whether Mr. Ranson's locality and honey-flow might be entirely different from mine, or whether there was any thing in his management that cut any figure in the case. A letter just received from him makes me believe that his management may have much, if not all, to do with it. I give his letter in full:

COMB HONEY AT SWARMING TIME.

Dr. C. C. Miller:—I promised you a letter on this subject, and state my practice as follows: I feed, unite, and encourage in every way, brood-rearing in early spring to get the bees to swarm early; and when they swarm I take out the queen and let her bees return; and in eight or ten days they swarm again, a mammoth swarm with virgin queen. Now this is my chance for big work in sections, so I take a hive with starters in brood-frames, or combs, if nice and white, and put on a queen-excluder; next put on a super with narrow starters; remove parent colony and place this hive in its place; take unfinished super from the parent, and place on top; put the guard over the entrance, and run the swarm in through the zinc; and if I find more than one queen on zinc, let only the *choice one* go in, and replace the guard *at once* to make sure only one queen gets in. Now take the combs from the parent, and brush all the bees off and out of the hive; let them also run in through the zinc, and take another lot of queens from the zinc, and let the guard remain, so as to keep out any queen that remains in the grass. Replace the combs of capped brood in the parent hive and close with wire cloth, and place it in some comfortable place to hatch out. If any of those combs have large healthy-looking queen-cells still unhatched, dequeen other colonies and hang said combs in. In 24 or 48 hours I repeat the brushing, and let the rest of the young bees go in; and if I want more queens I pick up the prettiest and put on those old combs with remaining bees to hatch. On the third day I remove the guard to let the queen mate.

Now I have a colony to fill the hive and two supers with bees, and by brushing young bees as before I can have them fill to the third and fourth super—no fear of swarming again; and if any honey is to be had, this is the colony to find it. It is fun to see all the combs in sections built down at the same time, straight and nice; no need of separators. I learn from the bees that no colony in which a cell hatches out a queen, and she takes her flight, and returns, will swarm again *that year, no matter how populous*. Now stick a pin here; and, again, no swarm hived with a virgin queen will build a drone-cell that year.

Now you may set another peg. Therefore I work to get all swarms hived with virgins, and, as far as I can, have cells given in early spring to prevent swarming. Early fertile queens from the South in spring help to keep down swarming in part only; but the cell given in spring is effectual. Any unhatched brood on hand by this practice is the best property to be had to build up weaklings, form nuclei, etc.

I am no literary man, and make no pretense to rhetoric, but a close hard worker in the bee-yard and workshop ; and what little I know for *sure* is what the bees taught me, and much of that is to some extent at variance with what I read in some of the books ; for instance, Prof. Cook's book taught putting supers ⅜ in. above brood-frames, when the bees say, "If more than 7/32 in. we will build in combs." Friend Doolittle, that veteran and esteemed teacher, never told us the ⅜-in. entrance is too small until the bees raised a fuss about it, then he said ½-in. was right ; but my bees say one inch. W. B. Ranson.

New River Depot, Va., Feb. 6.

There are points of excellence in this system of management that might well be considered by those so situated as to allow natural swarming. The gist of the affair is in keeping the whole force of the colony intact, thus having a powerful colony, and then avoiding the danger of such powerful colony swarming by having a young queen reared in the hive at or near the beginning of the harvest. Whether or not Mr. Ranson is correct, that no drone-cells will be built with such young queen, it is certain that the tendency toward building drone-cells will be thereby greatly lessened, and the strong force of bees crowding the supers makes a sure thing of pretty straight work in sections, whether separators are present or not. It is certainly an advantage to do without separators if they are not needed Mr. Ranson does not specially dwell on the point that he secures very strong colonies, but it will be seen that that is an essential and very important part of his plan. He says he feeds, unites, and in every way encourages brood-rearing so as to get the colonies to swarm early, which is only another way of saying that he does all he can to get colonies strong, uniting those not otherwise strong enough.

His plan of getting all the bees into the swarm is radical. Brushing all the bees off the combs of the old hive, he closes the combs in the hive so no robbers can get in, and leaves the remainder of the brood to hatch out without any bees clustering on the comb. This, he says, is "in a comfortable place," which may be outdoors generally, but would need to be in some warmer place if nights were chilly.

Without any experience in the matter I should say that it is unnecessary to be at the trouble to have perforated zinc at the entrance to strain out the young queens ; that there would be no danger of swarming, no matter how many young queens there were, and that the bees could be trusted to make the best selection, but it is possible that Mr. Ranson may have sufficient reason for the practice.

Marengo, Ill., Feb. 14.

[While I believe there is a good deal in Mr. Ranson's plan of working, yet there are very few, if I may judge by the past, who get any thing like satisfactory results in securing comb honey without separators. We know that with honey-buyers and commission men (and it is certainly true in our own case) as a rule non-separator comb honey goes at a discount. In our own experience it has to be crated a good deal as it comes off the hive ; for if two fat sections come together, then there is trouble. The fat one must be set aside until a lean one is found, then the two faces are put together.

Now, understand that I do not say that comb honey can not be produced, and very nice honey too, without separators; but I do know that *the average* bee-keeper does not succeed with it ; and if I read correctly between the lines, Dr. Miller would not use it, even if he could do just as well as friend Ranson.—Ed.]

FORMING NUCLEI.

A New and Very Practical Method of Doing it; an Ingenious Scheme for Making the Bees Stay at Home.

BY W. W. SOMERFORD.

"Expansion," or how to increase with the greatest certainty of success with the least labor, is a problem that I have been reading about and experimenting on for more than a dozen years. I have read hundreds of articles on the subject, and have questioned many prominent bee-keepers minutely as to the best, surest, and easiest way to get increase. I was even told by Mr. A. W. Osburn, of steam-extractor fame, exactly the way he increased from 25 to 500 in Cuba, in one season ; but as he had money behind the scheme, by the thousands, I consider it no very remarkable feat. I even believe it could be done here in the States with Miller feeders enough and the continual buying of feed in enormous quantities, so as to keep one on each hive well supplied with honey; for with plenty of feed, and by pouring it into the feeders at night, nice and warm, increase can be easily run geometrically. But the cash backing is what nine-tenths haven't got ; and if they did have, the honey that it would take to have those Miller feeders always plentifully supplied would cost so much that it would put a man to dreaming, and figuring to see if the bees couldn't be bought cheaper than the feed. So I'll come back to my way of increasing—"the poor man's way" in one sense of the word, and necessity's in the other; for bees are generally kept now in a number of apiaries, and consequently can not be tinkered with every day.

I now have six apiaries, and of necessity I had to invent a way of increasing rapidly and satisfactorily, with but little attention given to each division. To begin with, remove the queens or cage them in all of your fancy stock. After getting the brood-nest well filled with brood (the more brood the better—8 or 10 frames in a hive if possible) wait ten days after removing the queen, when the bees will generally have cells on each and every comb, and be in a broody or listless condition, waiting for cells to hatch. Dive, and remove the frames quietly, giving each new hive two frames of brood and all adhering bees, and one good frame of honey, using it for a division-board (and, by the way, such division-boards are to my notion the best in the world); put the two frames of brood and bees next to the wall of the hive, and let the honey-frame be the third from the side of hive. Be sure to see that you have at least one good ripe-looking cell in each new hive, or division, and don't forget the frame of honey. As soon as each division is made, stop the entrance of the hive by stuffing it full of green moss. If you haven't any green moss, use green grass or leaves, and be sure to stuff them in tight—as tight as though you never intended the bees should gnaw out, and be sure there are no cracks or holes that a single bee could get out at; for if there are, your division will be ruined by all, or nearly all, the bees that can fly leaving it. Each parent colony should make four or five good divisions that will make booming colonies in 40 or 50 days, and I have had them the best in the apiary in less time. Leave or loose the old queen on the old stand (if not too old), and the bees from it will work straight ahead, as they don't have to be confined to make them stay at home.

Don't be uneasy about the divisions that are stopped up, unless you failed to stuff the entrances well, for they *will not* smother, but busy themselves with gnawing at the moss or grass for two or three days, possibly four or five, if you have done an extra good job at stuffing the entrance. At the end of that time you will find them all gnawed out so as to have egress and ingress. Then you can move enough of the grass or moss to give them a clean entrance, 1½ or 2 inches wide; and by looking into them you will be astonished at the quantity of bees you have in each hive (and they, too, well satisfied), having consumed so much time in gnawing out that the queen had time to hatch and kill off her rivals and be ready for the wedding-trip by the time the entrance is cleared. So, instead of in a week's time, having a worthless weak division with a *chilled* inferior queen, as is the case in the old-style way of dividing, where nine-tenths of the bees return to the old hive, you have a strong vigorous queen and a nice little *satisfied* swarm of bees, ready for business in the way of pulling foundation before they are three weeks old.

I have succeeded with nineteen out of twenty divisions made in the above way, when I did not even see them until the third week after dividing them as above. And for the average bee-keeper who has out-apiaries I think there is no better way in the world to make increase. If there is I'd like to see or hear of it while the expansion question is being expanded.

In the above method of increasing, you have no queens to buy, no robbers to bother with, and but little time lost, as an expert can make 20 divisions an hour.

Navasota, Texas, Feb. 26.

[I do not know that I have seen this plan mentioned, for making bees stay in the hive—a plan whereby the whole thing works automatically. It is new, and I believe it is ingenious. It certainly commends itself as being practical.—ED.]

* * *

CUBAN HONEY.

It will Never be a Competitor of American Honey, and Why.

BY FRED L. CRAYCRAFT.

As the pages of GLEANINGS are often favored with something about Cuba it seems that interest in the apicultural future of this island is reviving; and now that we are gathered under the coat-tails of Uncle Sam it does not seem as if we are so far out of the world after all, and it is now time that Cuba should step forth and take her place among the honey-producing countries of the world, not only as to quantity but quality, in which she should lead the world. However, I think the fears of some of the fraternity are unfounded if they think that Cuba will flood the markets; for even if the duty of 20 cents per gallon were taken off there would be but little of it shipped to the United States, for the simple reason that we can get more for it in the markets of Europe. Of course, the white honey from the bellflower, neatly put up, either extracted or comb, would be a dangerous competitor if enough were produced; but Cuba will never have many Doolittles, Roots, and Hetheringtons; and if they were here they would find so many things to turn their attention to that they would not devote their time strictly to apiculture. I may be mistaken; but I think if A. I. were here and should go out to see the sun rise on New Year's morning he would walk right by where his bees were tumbling over each other in their haste to get out and get their backs all white digging their heads into the bellflower blossoms, and go and look at his coffee or pineapple patch, and pull some roasting ears for dinner, or perhaps carry in a watermelon before the sun warmed things up. The soil is very productive, and all fruits and vegetables known to the temperate climes as well as the tropics do well; and on account of the mild climate of this country, when one sets out a plant or tree he may feel sure of seeing it bear fruit.

During the recent disastrous cold wave which swept over the southern part of the United States we experienced the coldest weather I have seen during a seven years' residence on the island; but at no time did I see the thermometer drop below 52°.

There are many things to which one may turn his attention; but fruit-growing is destined to take the front rank.

There are also many disadvantages to one coming here; and, first of all, I do not think this is a poor man's country for a while, at least, and no one should think of coming unless he has enough to buy a place and carry him through his "tenderfoot" experience.

Politically this country has shown about every phase except liberty and good government; and if the pessimists of the United

States could have lived here a few years they could better appreciate the blessing of living under the best government on earth. The dawn of a new day is bursting forth at last; and under the tutelage of Uncle Sam, little Miss Cuba will in time grow up to be an accomplished young lady—not that Americans should expect too much from Cuba, for it must be remembered that the people have been under a government that has done all it could to debase them.

The present honey season is now drawing to a close, and, according to reports from what few apiaries are left, it has been a very good one, there having been very few days so cool that it interfered with honey-gathering.

Havana, Cuba.

[Nearly two years ago a report went abroad through the daily papers, to the effect that Fred L. Craycraft, an American citizen, had been struck down by some Spanish guerrillas; that his wife had been killed, with all his servants, and that his ranch had been destroyed. At the time there was no means for verifying the statement, but we gave it to our readers for what it was worth. Some months later, Mr. Craycraft unexpectedly called upon us, shortly before the outbreak of the Spanish-American war. He had come home to recuperate, and at the same time make some arrangements with a New York daily for which he was acting as special correspondent. After this he expected to go back to Cuba.

The simple facts in the incident related above were these: He had charge of a large ranch. A company of Spanish cavalrymen raided the place, killed and robbed people, and destroyed every thing they could find on the ranch. Mr. Craycraft, last of all, was requested to step outside of the inclosure. He knew well what that meant, for the Spaniards simply desired to get him at a point of range where they would not kill any of their own company in shooting him down. In self-defense he held up his United States papers, showing that he was an American citizen; but this so enraged the captain that he drew his sword and struck Mr. Craycraft on the shoulder, knocking him down, inflicting a bad flesh wound. But Mr. Craycraft, knowing full well the Spaniard, quickly arose to his feet, and offered him a hundred dollars if he would save his life. To this his would-be slayer agreed; but when Mr. C. produced the money the treacherous captain demanded to know where the rest was secreted, on pain of death. Our friend Fred, realizing that the money could be of no use to him dead, yielded, though he suspected further treachery; but fortunately this last saved him.

The story about Mr. Craycraft having a wife and owning a ranch was all a hoax.

I had many an interesting chat with Mr. Craycraft, for we went together to Buffalo. At a hotel in Cleveland he showed me letters of introduction from such distinguished persons as Gen. Gomez, Gen. Garcia, and Gen. Maceo. These letters spoke very highly of Mr. Craycraft, and testified particularly to the point that he was thoroughly reliable, and working in the cause of liberty. He had also letters of introduction from our consul General Lee.

Said I, "What do you do with these papers when you are inside of the Spanish lines?"

"Oh! I may have them ironed into my shirt-front. At all events, I have them stowed away where no one will ever find them."

"Have you been searched?" I asked.

"Yes, several times," he answered.

"Some time you'll be discovered; then what?"

"Then I'll have to take the consequences."

"What will that be?"

"Oh, I suppose the machete."

At the time, Mr. Craycraft desired that all of this should be kept strictly secret; for if the fact should have leaked out *then* it would have utterly destroyed his chances for doing some secret work which he expected to do when he went back.

Mr. Craycraft also had passes from the Spanish generals; in fact, he seemed to be a privileged character on both sides. Among other things he was assigned the important duty of conducting Senator Money through the Spanish lines into those sections of the country held by the insurgents, a task which he performed with tact and ability. Of his skill on this occasion the senator spoke in the highest terms.

You may wonder why I have so much to say about it. Simply this: Fred L. Craycraft was one of the Juveniles who, years ago, wrote for JUVENILE GLEANINGS. In fact, he grew up with the paper until it blossomed into the semi-monthly GLEANINGS. He has kept more or less in touch with us all these years, and, as our older readers will remember, he has been, during all this time, an occasional correspondent, part of the time from Florida and a part from Cuba. I know the readers of GLEANINGS will be interested in knowing that a member of our fraternity has rendered such distinguished services in the cause of freedom—yes, has been in the employ of Uncle Sam; has piloted distinguished persons through lines that no one else could pass.

When I last saw Mr. Craycraft at Buffalo I said to him, "You are about to go back into a very perilous work."

"I know it," he said; "but I believe it is my duty."

"I may never see you again," I said, "but I should much like to hear from you."

With this I bade him good-by and Godspeed. As the war went on I often wondered whether he was still living, and at its close I tried to learn his whereabouts. I directed my letters to several points, and each time the letter would be returned. Beginning to think he had been killed, I tried once more, and this time I reached him. In this last letter I requested him to tell us something of his scout experiences; but he very modestly declined to say any thing about it, adding that he did not think it would be interesting; but he did send an article which I take pleasure in giving to our readers. It contains one interesting sentence, to the effect that Cuban honey, even if the duty were removed, would probably never be a competitor of American honey.

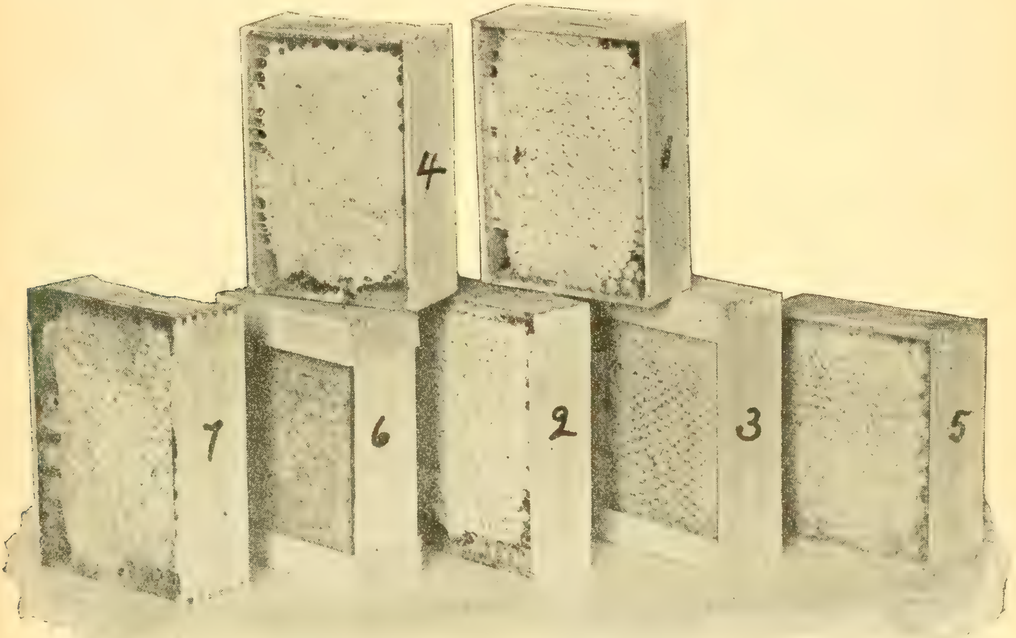
Mr. Craycraft is a man who knows as much as or more than any other bee-keeper on the island, in regard to the matter of honey. I am sure his letter will be read with interest.—ED.]

TALL VS. SQUARE SECTIONS.

From the Standpoint of a New York Commission House; "Tall Plain Sections Come to Stay;" a Valuable Article.

BY H. SEGELKEN.

Mr. Root:—We have noticed in GLEANINGS of late several interesting articles pertaining to the tall vs. square section, and we should like to say a few words from *our* standpoint, that of distributors.



THE SEVERAL STYLES OF HONEY BEST SUITED FOR THE NEW YORK MARKETS.

It is our opinion that the square sections, 4¼×4¼, have seen their day. The tall wide section will dominate, and eventually drive the square section out of use just the same as the square section drove the old 2-lb. frames out of existence years ago. This may not occur all at once, but it is bound to come in course of time. When eminent producers are about to adopt the tall wide section they certainly know what they are about, and they would not make the change for the fun of the thing nor as an experiment. We handled several varieties of tall sections the past season, samples of which we had photographed, of which we send you copies, and to which we will refer.

We handle, perhaps, a larger variety of styles of comb honey than any other market, as we have a good demand for glassed sections, a good demand for unglassed, and a fair demand for paper cartons; and a one-piece section, for instance, would not be desirable for glassing. For unglassed honey (strip of glass on side of crate, sections not glassed) we decidedly prefer samples No. 1 and No. 2, the new-style plain section, one-piece. Sample No. 1 is 5×3⅝×1½, and sample No. 2 is 5×4×1⅜. This is the first season we have had any of these sections, and we consider them the best that have been put on the market up to this time. There is something neat about them, which catches the eye. Perhaps it is that they have no bee-space, or beeway (projection on the side), which makes the comb look so much fuller. They look larger, and seem to contain more honey, and sell more readily than any other.

As to a choice between these two styles, we are in favor of the No. 2, 5×4×1⅜, because the ⅛ inch it is wider makes it look so much larger from the front, as the pictures will plainly show.

Sample No. 3, dovetailed section, 5×3½×1½, we consider the most desirable for a glassed section. The glass fits exactly in the beeway, making the comb even all around, and the paper around the top and bottom holds the glass better than glue or tin tips, besides covering empty cells, if there are any, making the package as a whole as neat as any thing that could be found. Mr. J. E.

Crane says, on page 126, GLEANINGS, Feb. 15, of the middle section, which he purchased in Washington, D. C., and which is poorly filled on the sides, that probably the section is too narrow to suit the bees. His section is 3⅝, and the section we have is but 3½, and plump full all around. We did not pick out the best comb, but the whole shipment of this lot was well filled all the way through, and this shipper had about 1000 crates.

Sample No. 4, one-piece, 5×3½×1⅝. This section is glassed, the glass glued to the section—any thing but a neat job, and we therefore can not recommend it for a glassed section.

Sample No. 5, dovetailed, 4½×4×1⅝, with bee-space. This section is glassed, fastened with tin tips—a good section for glassing, but small-looking alongside of the No. 3.

Sample No. 6, dovetailed, no bee-space, 5×3⅝×1½. This section is glassed, the paper holding the glass. We do not favor this style, as the glass lies outside of the section; besides, it is too heavy weight.

Sample No. 7, one-piece, bee-space, 5¼×4×1⅝—a large-looking section, but too heavy in weight.

While we are very much pleased with sections Nos. 1 and 2, we think there is still room for improvement; that is to say, the way *we* look at it, and we should like to offer this suggestion: Cut the sections down and make them still *thinner*. As they are now, they will weigh about an even pound, if well filled. The demand is for light weight sections weighing about 12 or 13 ounces. If ⅛ or even ¼ inch were taken off from their thickness they would have just the right weight to suit the majority of the trade, and would sell still better. We have been told by prominent producers that a thin section, for instance 1¼ in., can be produced to as good advantage as a thicker section, and that the bees will work on them and fill them just as nicely, if not better. If this is true, there is no reason why bee-keepers should not adopt a light-weight section. We are referring principally to samples 1 and 2, for unglassed honey. The cry would probably be raised that it would be dishonest to produce a section weighing but 12 or 13 ounces, and sell them for a pound. Yes, if it were sold for a pound it would be dishonest; but how much honey is there sold yet by the pound? Go into any retail store where they have comb honey, and ask, "How much is honey a pound?" and nine times out of ten you will get the answer, "So much a piece or comb." Nearly all honey is sold by the comb, consequently there is no dishonesty.

Right here we desire to touch upon another point of selling; viz., selling honey by the crate instead of by the pound. We have this season bought and sold a large share of our receipts by the crate. As Mr. S. A. Niver, of Auburn, N. Y., says in his letter to us, he has been selling honey by the count for years, and finds it very satisfactory. So have we. And we also find that the trade prefers to buy by the crate. Selling by the count saves labor all around, producers included, as they would not need to weigh the honey. We think this method has a good deal in its favor, and we should like to see it adopted generally. We may add that the honey should be graded properly, whether sold by the pound or crate. Nothing would be gained by filling the center of the crate with unfilled combs. It would sell for so much less per crate.

On the grading question we received a communication from Mr. Harry S. Howe and also one from Mr. Niver. Both favor the idea of having pictures of the combs of their respective grades in the market column, and these to be a standard for grading. Of course, the color or the quality can not be distinguished by the photos, and are not intended to be; but so far as unfilled cells are concerned we should certainly favor the idea. In this respect it would aid considerably in getting uniform grading. We wonder, however, whether this question will ever be settled satisfactorily all around. Of what use are the best methods or plans when there are bee-keepers who will not live up to them?

We said before, we had a good demand for glassed sections, a good demand for unglassed, and a fair demand for paper boxes. We do not wish to be misunderstood, and we repeat: For a glassed section, sample No. 3 is as desirable as any that could be had When glassed, 25 combs weigh 23 to 24 lbs., which is light enough for glassed honey.

But those bee-keepers who market their honey unglassed should adopt samples 1 and 2, and cut them down ⅛ to ¼ inch in thickness, and have a section which could not be surpassed. So long as light-weight sections have the call, why not give to the trade what it demands, when it can be done just as profitably as undesirable goods?

The *tall, wide, new plain section* has come to stay, and the sooner our bee keepers make themselves acquainted with this fact the better for them. The demand for honey in paper boxes has fallen off somewhat for the past two seasons, and unglassed has been in *better* demand than heretofore. Nearly all of our receipts of honey in paper boxes have been in the folding box. We have experienced some trouble this season with honey in this style. It appeared to be in good condition when it arrived, but in a few weeks the honey began to ooze through the paper box, and we found every box more or less saturated with honey, and sticking to the crate. We never recommended the folding box, as we do not consider it strong enough. If a paper box be used, it should be the heavy pasteboard box with separate bottom.

New York.

Mr. Root:—Just after we mailed our letter yesterday one of our out-of-town customers, who buys comb honey in round lots, came in, looking for plain sections, and felt quite disappointed that we had no more in stock.

Some time ago we sold him a lot of the tall sections, like sample No. 1, and he told us yesterday that at that time he was not in need of honey, but the combs looked so nice he was tempted to buy. When he received that lot he had quite a lot of the square sections in his store, which he had bought previously. He put the two lots alongside of each other, and found that all the customers grabbed for the tall sections, as they looked so much larger and neater. He finally put the tall sections out of sight in the rear of his store, so he could get rid of the square ones. This is simply *one* illustration of how the trade and the consumer regard the new plain tall section.

[Indirectly I learned that Hildreth Bros. & Segelken had something to offer on the subject of tall sections, and I accordingly wrote to the firm, asking them to give their views on the tall section, not knowing at the time that they favored the plain section. I also asked them to have a photo taken at our expense, showing the different styles of section honey which, in their opinion, was most marketable. They wrote us that, as the season was a little late, they had difficulty in procuring even fair average samples, and what they had to show would perhaps be under the average. The picture shown herewith illustrates the samples that they were able to procure, and, of course, are not presented because they are ideal specimens, but because they serve to illustrate the facts set forth in the article.

What Hildreth Bros. & Segelken have to say regarding the plain sections simply goes to confirm what Mr. Crane has said regarding these goods in the New York markets; and it seems to me that any one who lets his conservatism get the better of him so far that he will not furnish these goods for market, will be the loser. No one can afford to let prejudice stand in the way of better profits; and if the plain section outfit costs a little more at the start, it will more than make up for extra cost in the end.—ED.]

HAULING 5 TONS OF COMB HONEY 300 MILES THROUGH THE MOJAVE DESERT.

A Novel Method for Getting a Higher Price on Honey.

BY C. WINTER.

Having produced the above amount of honey in 1898 from 150 hives, and the best and only offer being 7½ cts. cash at depot here, I concluded that, after spending 3 months raising it, I could afford to spend a month or two selling it. An opportunity offering to take the honey at a low rate of freight to Los Angeles, I jumped the chances and went.

The front wagon was loaded with four tons; one foot of straw in the bottom, and straw packed solid on the sides, making a tight fit all around, with a good canvas on top to keep the sand and dust out. On the sides of this prairie schooner were two 50-gallon water-barrels. The second wagon was loaded with one ton of honey, 20 sacks of grain (feed for team), one ton of flour (freight for wagon station), our blankets, etc., and two 50-gallon water-barrels. The third wagon was loaded with two tons of baled alfalfa hay and more grain; 12 horses driven with a single line pulled the outfit. The live freight, which in bad places in the road we unloaded, consisted of one teamster, one swamper, one passenger, and myself and a man who was "hoofing it" through the desert, and whom we picked up and gave a lift. As a side issue we had a two-horse team with cooking-outfit—mostly frying-pan and coffee-pot, presided over by four ladies, one man, and four children. We camped wherever night overtook us, carrying our own feed and water, and made the trip in four weeks.

Well, the honey rode all right on that "dead-ax wagon," over big boulders, through deep sand, down the San Franciscite Canyon, and up the Newhall grade, contrary to every prediction made by wise and old-time fogies; but it was fancy white honey—not a faulty section in the outfit. The driver understood his business; and when we reached Los Angeles, and saw fine white-sage comb honey (crop of 1897) in the show-windows at 10 cts. retail, we turned right around and sold, two days after arrival, one ton of our fancy water-white at the finest retail grocery in the city at 11 cts. spot cash. The homeward trip was made in a light rig in 6½ days.

Bishop, Cal., Jan. 30.

RAMBLE 164.

Bee-keeping on the Housetop.

BY RAMBLER.

Although it rained nearly all day Sunday I donned my mackintosh and attended church. I found that Roseburg has its full complement of little struggling churches. I have many times sadly considered the cranky ideas that hold the different sects apart, and see how hard it is for many of them to keep up respectable appearances. In a weak condition they are conducted with about half the zeal and vigor they should be. Why! it is just like dividing a rousing swarm of bees into a dozen nuclei just when the fields are white for the harvest, and expect them to secure a honey crop. If the dozen churches in Roseburg would unite in one rousing body I have no doubt they would be in a condition to soon cast a strong swarm and establish another church. Now, according to my notion, if the Universalists would be a little less cranky on the subject of tophet, the Adventists compromise a little on the seventh day, the Baptists revise their irrigation scheme, all the other isms ditto, and all come into the Congregational Church, what a happy condition of things that would be![*] From the light attendance at church I should judge there was the usual number of sugar-and-salt Christians in Roseburg, afraid of melting under the raindrops. But how quickly their fears of melting are banished when a comic show comes along! They get to the show, rain or shine.

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[*] Rambler's philosophizing on the need of uniting denominations struck a respondent cord in my make-up; but when he suggested that they should all be called "Congregationalists" I smiled out loud. When I was a boy we had a political meeting at the schoolhouse, and there was strong talk of abandoning political parties entirely, and voting for good men. Somebody made a motion that, at least for the time being, and in our own locality, we let party drop entirely, and come together as friends and neighbors. This move had a hearty endorsement, and everybody began to look hopeful and happy. Finally a cranky fellow, who always got things wrong, and generally had more to say than anybody else, got up and mov-

Having a well-spent day to my credit I felt quite happy Monday morning in spite of fogs and mud; and thinking that I could be of no use to the bee-keepers of the vicinity I left town at 8:30 on the schoolma'am train for the north. Roseburg has a normal school, and is a sort of headquarters for teachers, and a bevy of them came aboard the train, each armed with a common nickel-plated alarm-clock. I had some curiosity to learn something about the clock; but the prim and severe aspect of the owners presented an insuperable obstacle to my investigations in that line. However, the train soon stopped at a cross-road where there was not a house in sight, and one schoolma'am and a clock marched out. Soon there was another stop at a farm-gate, and so it continued for half an hour until all the ma'ams and their clocks were disposed of. The last stop was near a schoolhouse, and the children came romping through the mist to meet their teacher; and as I saw the cordial greeting I thought that surely the life of a schoolma'am has more roses than thorns in its course.

The same agricultural and horticultural conditions hold good in Oregon that we find in Southern California. Districts have their own peculiarities. One district produces a certain kind of fruit in greater perfection than an adjoining district. We are now passing through the Umqua Valley, where the prune grows to perfection, and we pass extensive orchards.

GLIMPSE FROM A PRUNE ORCHARD.

From this valley our route takes us over the Calipooia Mountains, and we enter the great Willamette Valley. The towns become more numerous and larger, the fields broad and level, and devoted to the raising of grain, while some towns are a center for the lumber business, which is great in Oregon.

While passing through the hills another feature reminded me of the far East. The lovely autumn tints of the forest were in their most vivid colors. This coloring is wanting in our southland; and as it had been nearly eight years since I had seen such a glory of the hills I allowed my eyes and imagination to feast to the full.

In the soft light of an autumn day,
  When Summer gathers up her robes of glory,
And like a dream of beauty glides away.

In this valley we also reach the land of the golden pheasant; and the first one I saw fly out of a grain-field reminded me of a stick of yellow pine stovewood with wings attached. While the bird does not show off well in flying in the distance, it is a beautiful creature when seen at rest in a cage or corral. They are becoming plentiful all through this country, and in the season when they are allowed to be hunted they make a good table bird.

This time my ride by rail took me 146 miles, and I stepped off the train at Salem, the capital of the State, a pretty city of about ten thousand inhabitants. I was extremely lucky again to get into a cosy, well-kept temperance hotel.

During my journey I had not seen any evidences of bee culture; and I judged, from the appearance of the Willamette Valley, that certain portions of it were not adapted to the profitable production of honey.

The next morning I donned my mackintosh and sallied out in the misty rain upon an exploring expedition for some Oregon honey. I soon found a nice exhibit in a neat glass case in a grocer's store, and which had all of the evidences of a careful bee-keeper, and I forthwith interviewed the grocer.

"I observe you have some nice honey here," said I; "is this a home product?"

"Yes, sir," said he; "that was left here by Dr. Chase, of this city. He is the best-posted bee-man in this portion of the State, and a very skillful manager of the busy bee."

"But," said I, "do you not sometimes handle California honey?"

"No, sir, I do not," said he; "I want nothing to do with California honey. We always get it from dealers in San Francisco, and we grocers get imposed upon many times with adulterated goods; and a child that has been burned does not want to put his fingers in the fire again."

"Well," said I, "suppose an association of bee-keepers should send you some honey, and

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ed that, when all party lines should be obliterated, the organization should be styled the "Republican party." This created a big laugh, but it had the effect of upsetting all that had been done, and each man went back to his old party line.—A. I. R.

guarantee its purity; would you not be willing to handle it?"

"That might be a different proposition," said he; "but there is so much adulteration practiced, and it is so easily done, that there would still be suspicion; but I am sure I should be willing to try to sell honey from such an association."

This is a fair sample of the way grocers all through this country talk and feel about California honey; and it seems to me that the only remedy is for bee-keepers to sell through an organization.

The grocer kindly stepped into the street, and pointed to the building where I would be apt to find the doctor, and I hastened in that direction, and was so fortunate as to find him in his office. I met a medium-sized spare man, about 70 years of age; hair, beard, and mustache plentifully sprinkled with white, and with a little black smoking-cap on his head. I introduced myself under my normal name, and proceeded to business.

The doctor has been interested in bees for several years, and sort o' stumbled into the business in an accidental way. The more he handled them the greater became his enthusiasm, and he gradually increased his number of colonies up to 100, and he also worked into a fine business in selling supplies.

In order to enlarge his business, and to avail himself of cheap water power to run his machinery, he moved to the town of Lincoln, a few miles from Salem.

His business started in well, and he sold a large number of hives and other supplies, and every thing seemed fair for an enlarging and prosperous business, when, like many another man, in a moment when least expected, disaster overtook him, and his plant was burned. Disasters hardly ever come singly, and soon after the fire a flood swept away a large amount of choice lumber in which his money was invested. At the end of these sad affairs he was almost impoverished, and with only a few colonies of bees left. He returned to the city, and has again taken up the practice of medicine; but through and above all of these discouragements the bee fever does not leave him. With his son, who is also interested in the bees, they are building up again, and now have about 40 colonies.

"Ah! yes," said Dr. Chase, with great depth of feeling, "the blessed bees, *blessed bees*, they have come to my aid and enabled myself and family to live when all else seemed a failure—blessed bees." Indeed, doubly blessed in his case.

"If you care to see some of my bees," said the doctor, "I have 20 colonies near us."

I signified my entire willingness to see the apiary, and the doctor led the way to a rear room. His office was upstairs, and from this rear room we could look out upon the roof of a rear wing to the building. In both rear windows were hives of bees, and several hives on the roof beyond. He called this his Webfoot apiary, after the webfoot State of Oregon, you know. At about this time I had become quite enthused over the doctor's bee-keeping, for this was the first housetop city apiary that I had ever seen. I pulled from my pocket a tourist camera, and said, "If you have no objections, doctor, I should like to take a photo of your apiary."

AN APIARY ON THE HOUSETOP.

"Certainly," said he; and then, turning to me as though a new idea had struck him, he said, "Your name is—is—M—n; thunder and lightning! then you are the Rambler!"

"The same, at your service," said I, and proceeded to take the photo which I herewith present to your readers.

Some years ago the doctor served in the U. S. army as surgeon, and in his professional life he made a study of antiseptics. This habit he carried with him into the business of bee-keeping, and as a result he told me that he had discovered a remedy for foul brood.

"Why, doctor," said I, "if that is a fact you have made a great discovery, and a grateful fraternity of bee keepers will arise and bless you. But," said I, with something of a tone of doubt, "are you sure that you had a real case of foul brood?"

The doctor smiled as though it was presumption on my part to have the least doubt, and said, "I know too well the baleful effects of the disease; but I know I can cure it every time, no matter how virulent the case."

The doctor made no secret of the treatment, and it will be given in the next Ramble.

W. F. B., Ohio.—It is a little late in the season now (March 24) to move bees, especially in your locality. The moving should have been done late in the fall or very early in the spring. I think it would be advisable for you to leave your bees where they are for the present. If you desire to move them only a short distance, move them gradually — that is, only a few inches a day.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE

BROOD-COMBS FILLED WITH HONEY AND POLLEN.

Question.—Please answer the following in any bee-paper published in the English language, as we take them all. Here in Jamaica, just before the beginning of the main honey-flow, our bees fill up the brood-frames with honey and pollen. We take them out, putting in others, and these are filled. We know the queens to be good, young, and vigorous. We put supers on, but it does not help matters much. Whose fault is it — the bees', queen's, or ours?

Answer.—While this question comes from Jamaica, I thought it would not be out of place to answer it in these columns, as GLEANINGS not only has many subscribers there, but many of us here in the United States are troubled in a similar way with pollen, if not with honey. During the bloom of hard maple and the wild grape, I often have combs so filled with pollen that they seem almost useless, and others are bothered in the same way, some to an extent great enough so that I heard a man at a bee-convention once offer $50 for a machine that would remove pollen from the combs without harming them. I used to remove these frames of pollen, as our questioner says he does, but instead of putting in empty combs I put in a dummy or division-board in place of the frames removed; and when the sections were on, this would throw a greater force of bees into the sections, and thus, as soon as any honey came from the fields, it would go into the sections, thus relieving the pressure of honey from the brood-combs. But later on I would simply shove these combs of pollen back toward the side of the hive, by removing an outside comb if necessary, and place a frame of comb foundation between the pollen and brood, and where honey enough was coming from the fields to cause them to draw out this foundation the queen would fill it with eggs before the cells were deep enough for the bees to do much work at storing either honey or pollen in them, and thus I had brood where I should get only pollen were I to give an empty comb in place of the foundation. There is always something about drawing out foundation or building comb that sets the queen to laying more vigorously than where no comb is built; and where combs can be drawn or built, there is usually no trouble in having them well filled with brood; and where young brood is maturing rapidly much pollen is used, thus keeping the combs from being overloaded with pollen, and rearing a lot of bees for the harvest. But with us, such yields of pollen rarely last more than a week or ten days, after which the bees generally are anxious for brood; and what appeared combs nearly spoiled because they were so full of pollen assumes a different aspect very soon; and by the time the main honey-harvest arrives, there is little more pollen than is necessary in the hive.

Just why the queens do not breed when pollen comes in so abundantly is a mystery I have never been able to solve, though I have spent much thought and study on the subject. The nearest I can come to the matter is that, for some reason, the bees fail to feed the queen on the stimulating food usually given at all times when she is laying very prolifically, and all know she lays only as she is fed and cared for. When laying very prolifically we see bees offering the queen food every few minutes; but at these times when pollen is coming in so as to crowd the brood it is a rare thing that I see the bees feeding the queen. For this reason I should say that the fault lay in the bees more than in the questioner or the queen. If he can devise some plan or way whereby the bees can be caused to feed the queen abundantly at the time when his brood is being crowded with honey and pollen, he will have the key to the situation, and be enabled to turn these things to a good account as they are changed over into brood. It is possible that a little very thin or diluted sweet fed at such times would have the desired effect, if fed just at night, this causing the bees to feed the queen, as it generally does at all times when so fed. Were I to have another season when the combs are crowded with pollen I would try it and see what the result would be. There are times (when it is generally cool and stormy) when the bees will not feed the queen nor perfect any eggs into larvæ, no matter how hard you coax; and this time of pollen might prove like these; but I should sooner think otherwise.

SCHOLZ (OR GOOD) CANDY.

Question.—Jamaica, again, wants to know my treatment of a strong colony previous to giving the cell-cups, and also just how I make my candy for shipping queens, as only four out of the forty odd sent him last year arrived in any other than a good condition, and these four were fumigated to death in the mails, when the scare about the yellow fever was on. He says, "It would be dollars in our pockets if more of *your* queen-breeders knew how to make *Good* candy."

Answer.—A part of the time I buy this candy of The A. I. Root Co., and a part of the time I make it myself; and I do not know that there is any difference between that made by them and that made by myself, when first made. But with either, when shipping queens where they must go in hot weather, or go from our cool climate into a hot one, as in going to Jamaica or the Australian colonies, I take the candy and knead into it some very fine granulated sugar, to the amount of about one-sixth of its bulk, and this granulated sugar makes the candy "hold up" in place, no matter what the weather, while at the same time it does not take from its moisture.

To first make the candy I use good powdered sugar, setting it near the stove for four to six hours, till thoroughly warmed through, when some good thick extracted honey (of any kind which is wholesome to the bees) is warmed till it feels quite warm to the hand. The two are now stirred together, adding sugar till it can be worked with the hands, when enough of the sugar is kneaded in till a loaf is formed which will stand up of its own accord without flattening down when placed on a flat surface. It is now set away in a warm room for a week or so, when it is ready for use, using granulated sugar, as above, when the weather is warm or the queens are to go to some climate where it is warmer than it is here. Before the granulated sugar is added, candy that will stand up nicely in a temperature of 75° will all go down and slowly run about if kept in a temperature of 100° for half a day. But after the granulated sugar is added it will hold its place, even when the temperature is above 100°. From what I have seen, I am convinced that more queens are lost when sent to a warm climate by the candy getting soft and daubing the bees than from all other causes put together, so it is well to guard this point as strongly as possible, for it is at best a hard jaunt for bees and queens to any of the foreign countries.

Regarding the preparing of a strong colony for queen-rearing, I gave all I wish to say in an article published in GLEANINGS the first of this year. I could not make it any plainer were I to try again.

HEADS OF GRAIN FROM DIFFERENT FIELDS

THOSE HONEY-LEAFLETS ALL RIGHT; HOW THEY MAY BE MADE USEFUL.

They are all right! What's all right? Why, those honey-leaflets you were inquiring about. They are similar to a mustard plaster—the effect of them is according to how applied. They answer the 101 questions that every honey-peddler is asked at every door. Time is money. Have your name and address on them, so they will know where to send an order if desired. Every peddler of extracted honey is eyed with suspicion, especially by strangers.

Politeness should always precede the leaflets. As the lady opens the door tell her you have called to sell her a pail of as fine honey as she ever saw (never try to get a new customer with any thing but an A No. 1 article). Of course you will hear a lingo of questions about strained honey and sugar until one would imagine the regulator of a talking machine had given way.

Hand her a leaflet, naming some of its principal points, such as kinds of honey, care of honey, and the recipes, with a strong invitation to read it, as you have them printed for the benefit of your customers; also saying that you are trying to start a trade in that vicinity, and will sell her a pail on trial. If it is not satisfactory she may drop you a line and you will return the money and take what is left of the honey.

Of course, there are some where the honey may be left on trial without pay, and some where you should tell them you would return the money for the honey left. Common sense comes good every day.

Every package of honey should have the producer's name attached to it (excepting the poorer grades). The leaflets are not as costly as labels, and are 16 to 1 better. When a customer buys a pail of honey at the store and gets a leaflet it will be read, for it explains 101 things, as I have said before. They will inquire for that man's honey; the storekeeper will buy that man's honey; and if you are that man, place a horseshoe over your door, as good luck is yours.

Those leaflets, if not properly used, are like a little story I read. An old woman who lived in poverty had a son who dwelt in luxury. A friend asked if her son ever sent her any thing. "Oh, yes! he sends me a picture every little while;" and the old woman brought out from its place of safety a box containing the pictures which her son sent, which placed the old lady in joy, for they were $100 checks, but she never knew their value before.

If the columns of GLEANINGS are yet ajar to articles on facing honey I wish to say I always have been an advocate of facing our produce, but in such a manner that we could face our customers after the sale.

Please tell E. E. Hasty that I well remember his writings in the '80's, and one of the relics of my shop is a hive-balance described by him in GLEANINGS, Sept., 1880.

Mohawk, N. Y. C. R. MORTS.

NO QUESTION BUT THAT THEY DO GOOD.

I am at a loss to understand how there can be any difference of opinion in regard to the value of the honey-leaflets. Manufacturers and producers in almost every line of business expend large sums of money in setting before the public the merits of their products by means of handbills and circulars of every description. There must be a great waste here if all this has no effect. Fully half the customers to whom I have handed a leaflet along with the honey have asked, "What's this?" looked at the heading, and have been well along in the reading-matter before I left. There is no question that, if they are read, they must do some good, for the majority of people living in large towns and cities are not very well informed in regard to honey and its production—one fact which I think accounts for the idea so many people have that most honey on the market is artificial or adulterated, when, in fact, there is very little adulterated honey to be found nowdays; and I might suggest, as a means of educating the people a little more in this direction, that a few statistics on the production of honey in this country would be a good idea in getting up these circulars.

I am often asked the question, "Where do you get so much honey? I thought the production of honey was a lost art in this country." They do not know that the amount produced in 1890 was sixty-five million pounds, and has since largely increased.

The recipes for the use of honey as food and in medicine are, I think, the most valuable feature of these leaflets. In fact, I thought they were of such value that I selected the best of them and had them printed upon the label on the can. We sell mostly extracted honey, so that if the leaflets themselves were destroyed they could be referred to at any time. Quite a number of families do not care for honey as a spread, but use it for cooking purposes and in medicine, and any thing that serves to call their attention to the use of honey in this way is just so many more customers gained. E. Z. BUCHANAN.

Allegheny, Pa., Feb. 27.

HOW TO MAKE THOSE LEAFLETS A SUCCESS.

I guess I have said as many good things about them as any one; and before you dump them into the waste-basket lay some away for me to use ; for if I ever get any more good crops of honey I shall *certainly* want them. Now, then, Mr. Editor, you want our views. Should the leaflet be more expensive? I might suggest one verse or a few lines added for the *express* purpose of cutting out and pasting in our hats. I should want it to read something like this: "Don't waste these leaflets, throwing them on porches, and scattering them around promiscuously. Don't use these leaflets if your honey is not of good quality and *thoroughly* ripened before it was extracted. Don't forget, when you do make a sale of *good* honey, to hand the customers a leaflet. Don't forget to tell them that it will teach them how to warm up candied honey; it will educate them quite a little. Don't forget that very *few* are educated about honey and bees. Don't forget that half the people hardly know what honey is. They should and will if we do our part well. Those leaflets will help do the talking. Don't forget to leave a sample of honey when you call from house to house. Don't forget to leave the leaflet and your name and address, because, after they eat the *good* honey, they will read the leaflet and then say, I *must* get some of that honey."

Don't you see we almost compel them to read those leaflets, and also buy our honey? Don't forget to stay at home, though, if your honey happens to be a little off—so much so that your own family don't like it. Don't forget that poor honey sells poorly, just the same as any other poor thing. Don't forget those leaflets are all right if you know how to use them rightly. Don't forget to take off your hat every few days and read these *don'ts*. Don't forget that, if the leaflets are all right in one place, they *must* be so in other places.

New London, O., Feb. 7. DAN WHITE.

NO SALES FROM HONEY-LEAFLETS.

On page 19 Henry Wilson, of Clinton, Ill., gives an unfavorable report of the honey-leaflets as an advertising medium for selling honey. Since the editor says, "Let's hear from others," I will testify. On August 3, 1897, I ordered from you 500 leaflets, which were forwarded to my address, and I began distributing them among my neighbors and friends at once ; and as my correspondence is somewhat extensive I usually made it a point to put one in every letter I mailed. The results have been watched with anxiety, but I have failed to notice a single pound of honey sold under the direct influence of the leaflets. My mode of advertising honey is, let them taste it. M. N SIMON.

Bloomdale, O., Jan. 4.

THAT MORTON SWARM-CATCHER; CORRECTIONS FROM NIVER.

The last GLEANINGS, containing your write-up of the swarm-catcher, calls for a word or two from devotedly thine.

Firstly. You have no cause to grumble at my "five feet four." That elevation is a birthday present to me. See?

Nextly. Your drawing of the extension-pole is wrong at the top. The basket must be swung from forks, so it will keep right side up with care.

Once more. There is *another* pole necessary (or convenient) to go with the outfit. That is a 16-foot pole with a hook at the end, to shake the limb as you hold the basket under the swarm. After the main part of the swarm is in the basket, and lowered by means of the rope and pulleys, there is quite a per cent of them flying that will go back to the limb, many times calling the rest after them. But if you keep up a shaking of the limb with the pole they settle on the basket; and when quietly settled—never before—should be taken to the proper hive and "run in."

And again. That basket is fastened to the extension by means of a galvanized-iron socket which is part of the forks aforesaid, and can be slipped off when lowered within reach, leaving nothing but basket and forks (with socket for a handle) to tote off to the stand. I was going to improve this *shaking* pole by making it in two sections of 12 feet each, so as to fit all cases. S. A. NIVER.

Auburn, N. Y.

TRAVEL-STAIN; A FEW MORE INTERESTING FACTS.

Friend Root:—I hardly need tell you I was much interested in the articles with criticisms on "travel-stain." While I see as yet no reason for changing my views on the subject, yet I feel that a free discussion is or will be helpful to a full and complete understanding of the subject. At the recent meeting of our State Bee-keepers' Association Mr. W. G. Larrabee made the statement that, in the use of combs in an extra super for extracting, he had found that, where he used old combs in which young bees had been reared, the cappings of such combs were travel-stained ; but in new combs, or combs that had not been used for brood-rearing, the cappings were white. A statement was also made by Mr. V. V. Forbes, a very candid man, that, where he had cut down old comb, and the bees had built out new, the part nearest the old comb was darkest, and the color changed to nearly or quite white at the edge furthest from the old comb.

Another fact in regard to the filling of boxes was brought out by R. H. Holmes, one of the most careful and conscientious bee-keepers of Vermont. He stated that he had had small sections filled as perfectly as he had ever had those that were larger. Some of the finest honey he had ever produced was in sections 4¼x3⅛x1½, and would weigh just ½ lb. This would quite contradict what I thought was the reason for the imperfect filling of those I saw in New York and Washington; but I believe it much more important that we get at the truth than that any theory of mine should be proved correct. I hope that, before we are much older, we may know more about it. J. E. CRANE.

Middlebury, Vt., Mar. 7.

PROSPECTS DISCOURAGING IN THE EXTREME IN SOUTHERN CALIFORNIA.

From present indications this year seems destined to be one of the most trying that the various industries of the southern portion of this State have ever encountered. The bee interests in particular will suffer to such an extent that it will force many to seek other fields or means of making a livelihood. The present estimate places the loss of bees last year at 50 per cent, so you see that a further loss at the same rate would almost destroy the few remaining. The pitiable condition of the ranchers who are dependent entirely on the annual rainfall is beyond comprehension, and, as a result, many a man will suffer for the actual necessities of life.

G. W. BRODBECK.

Los Angeles, Cal., March 7.

PREPARING TWO-STORY HIVES FOR WINTER; TRANSFERRING, ETC.

1. How would you prepare double-deck eight-frame hives for cellar wintering?

2. In transferring from various styles of movable-frame hives to eight-frame D. hive, by Heddon process, when would you do it? Our main honey-flow is from clover and basswood (fall flow usually very light) but we have much raspberry forage, usually getting some swarms therefrom.

3. In transferring, would you drive bees up into a hiving-box, or take out old frames and shake them down in front of new hives? I wish to increase stock by a second "drive" later.

4. Can Mr. Geo. E. Hilton tell us, through GLEANINGS, how he gets his bees ready for the raspberry honey-harvest?

Cedar Falls, Ia., Jan. 28. J. D. BIXBY.

[1. I would not try to put two-story hives in the cellar. A colony can usually be crowded into one story late in the fall or about the time the bees are put into the cellar.

2. By the Heddon method you can transfer at any time, although if I had to transfer some time during the season I would do it either in the early spring or after the honey harvest. Spring is to be preferred, for then you will be enabled to use modern comb-honey supers.

3. I would do both ways; but generally I would shake the bees in front of new hives.

4. Hon. Geo. E. Hilton is respectfully requested to give the desired information.—ED.]

HOW DID THAT WORKER BROOD GET THERE?

Dr. Wm. S. Adams, of Guys, Md., sends me the particulars of a very unusual case, and asks for an explanation. It seems on first reading that there must be some mistake; but that can hardly be, every thing being given with such circumstantiality of detail from notes taken on the spot.

An examination of his colonies April 15 showed brood in two or three frames in each colony, a few colonies having brood in the fourth frame. One colony had a sprinkling of brood scattered throughout five of its frames, showing that it was unusually strong; and the brood being in worker cells, and capped over with raised cappings, showed clearly that it was the work either of laying workers or a drone-laying queen. It was not opened again until 25 days later, May 10. On that date were still found raised cappings as before; but in one frame, a little below the center, was found a solid patch of sealed worker brood, regular oval, about two inches in diameter, and in the center of the patch a well-formed sealed queen-cell! On either side of this frame was added a frame of emerging worker brood, and in due time the young queen left her cell, was fertilized, and built up a fairly strong colony.

Now, how did that patch of worker brood get there? One explanation might be that a comb with a patch of eggs or brood had been put there and forgotten. But that explanation is ruled out when the doctor tells us that in the same frame were scattered cells of the laying workers' work, and it is further ruled out by the information that the doctor's health was such that he did not touch the hives during the preceding 24 days. A played-out queen might lay a few eggs from which workers or queens might be reared, but in that case some sealed worker brood ought to have been seen April 15. Moreover, a queen so nearly played out that she laid only a few worker eggs would have those few well scattered, and not in a compact patch. It's asking too much to ask us to believe that the bees brought the eggs or larvæ from some other hive. The only reasonable guess I can think of is that by some means a laying queen from some other hive, possibly one that swarmed out in the excitement of a spring flight, entered the hive, and was tolerated long enough to lay the patch of eggs. If any one has a better explanation, I don't insist that mine is the right one.

Marengo, Ill. C. C. MILLER.

WATER-SOAKED COMB HONEY; ITS CAUSE.

By the way, I do not remember ever seeing any thing in GLEANINGS in regard to no air-space between cap and honey, made by hybrids. At least one-half or two-thirds of all my honey this year had no air-space between cap and honey. The capping was flat on honey—just as when you press on honey with your hand. The honey looks wet—is that way when on the hive. It looks very badly, and hurts the sale of it. Has this been written about? G. F. AYRES.

Atherton, Ind., Jan. 23.

[I do not know that hybrids are any more inclined to make cappings of their honey come in actual contact with the honey itself. We have always supposed that black bees make the whitest comb honey, for the reason that the cappings do not touch the honey itself; that hybrids, from the fact that they were half-bloods, were next best, and Italians third. But usually there is very little difference in the comb honey produced by any of the bees. The season and its attendant condition has more to do with it. When there is a moderate flow, I have noticed that comb honey is more apt to look water-soaked than when the flow is rapid. During the last season there was more so-called water-soaked honey on the market than during any other year I have ever known, and I attribute it to the fact that the season was poor and backward, and that honey had to be necessarily left on the hive for a considerable length of time. This water-soaked appearance may be partly due to so-called travel-stain; but more often because there are no air-gaps between the cappings and the honey.—ED.]

LOGWOOD HONEY FROM THE ISLAND OF JAMAICA.

The honey-flow has started, and is immense. We are extracting rapidly, and the honey is of the very highest grade — equal, we think, to your basswood honey of which we see so much mention made in GLEANINGS. The present flow is from the logwood, and we intend to send you three sections soon, as a sample, which will, we think, satisfy you that West-Indian honey is sometimes as good as the Northern article. HOOPER BROS.

Kingston, Jamaica, Jan. 24.

[The three sections mentioned above are at hand. In looks it certainly would compare favorably with any thing we can produce here in America. On breaking the comb we find the honey very thick, of a beautiful crystalline light amber; and when one tastes it he utters an exclamation of surprise and pleasure — at least I did. The logwood honey is unlike any thing else. The flavor is peculiar, suggesting something between violets and geraniums—at least the honey seems to taste somewhat as violets and geraniums smell; and yet the distinctive flavor is not strong enough so one would be likely to tire of it. My impression is, that if this honey were on sale in some of the cities, and if customers were allowed to get a taste of it, it would all go off at fancy prices. Not everybody may think as much of it as I do; but if all logwood honey is like the sample sent us I predict it will rank side by side with the choicest products of the world—mountain sage, honey of Hymettus, or any of the clovers. I hope the Hooper Bros. will be able to ship us some extracted logwood honey; and if they can manage to make it come this long distance without being damaged in transit we should like some of the comb honey also.—A. I. R.]

DO BEES LIVE AFTER STINGING?

In Stray Straws for Nov. 1, p. 790, there is a note that the loss of the sting of a bee does not necessarily prove fatal to it. I do not wish to set myself up for authority on the subject, but I will relate a little experience I have had in that line.

Sept. 7 I had a horse stung so badly by bees that it died. I was somewhat interested, and watched to see what hive or hives the bees came from; but I could not see any dead bees around any of the hives — that is to say, more than usual.

Wishing to experiment a little, and to find, if possible, the cause of death of the horse, on the 12th of September I procured an old horse and a swarm of black bees in an old box hive, and let the horse and the bees become well acquainted with each other. In fact, I placed the hive so that the horse tipped it over. I let the bees sting him for about twenty minutes. I expected to find a large number of dead bees, but I did not. I did not look to see if the bees that were left had lost their stings, but I was astonished not to find more dead bees.

The colony did so well that, in the last week of September, I transferred them. When I packed them for winter they were a fairly strong colony, and I wondered what became of the bees that stung the horse, for it did not seem possible to me at the time that they could have built up to the numbers they were after the depletion there ought to have been if those that stung the horse had died.

GEORGE L. VINAL.

Charlton City, Mass., Dec. 1.

TRAVEL-STAINS.

I do not wish to prolong this discussion, but I should like to suggest some facts that seem to conflict with Mr. Manum's position, or entirely disprove the soundness of it. I presume that every one who has placed an empty frame between two frames of old dark-colored brood-comb has seen quite dark-colored new comb built in that frame. I have seen it, when first started, nearly as dark as the old combs. I have seen a whole frame filled with dark new comb, differing in degrees of color. Can any one deny that old wax was used in making this comb? I will not affirm, as Mr. Manum puts it, that the "bees made use of it *for the purpose of economy*" (italics mine); but it is certain that the bees used some kind of colored foreign substance—it may be only old wax in this case — and incorporated it in this new comb. Why they did it I will not pretend to say. Again, if the bees carry in so much coloring-matter on their feet and bodies as to color the wax of the cappings, is it not reasonable to suppose that some of this coloring-matter would sometimes get mixed up with the wax in the very new combs built for honey? But we know that it does not. Bees begin putting honey in this new comb sometimes when the cells are not much over a quarter of an inch deep, and the lengthening of the cells and filling them with honey goes on at one and the same time; and there must be a great deal of travel over these new white combs; but we never see them travel-stained or pollen-stained, even when there may be some pollen in the bottom of the cell.

Referring to your experiments with gasoline, you say it dissolves and gradually absorbs the wax I would suggest that the gasoline may dissolve the wax without dissolving the coloring matter or absorbing it, and it is still left to show on the cappings. I have no theory to uphold in this matter, but only wish to get at the truth. THADDEUS SMITH.

Pelee Island, Ont., Mar. 13.

ONE THOUSAND MILES ON A BICYCLE IN CALIFORNIA; RAMBLER'S WRITINGS.

The drouth still holds a firm grip on California, with only about three inches of rain in the southern counties, and about seven inches in this part of the State. There have been no indications of rain this month, and the prospect for bee-keepers is very poor at present.

We find our bicycles a great help to us in seeing this country. In California the railroads, steamships, ferries, and some street-cars to suburban towns, carry them free of charge, and have never injured ours in any way. We brought them to California free as baggage, cased. My cyclometer now shows that my wheel has carried me one thousand miles in this State.

I have found that, of all my previous information in regard to California from various sources, the impressions obtained from the writings of J. H. Martin, in GLEANINGS, were the most correct. I consider his Rambles, as published in GLEANINGS during the past six or eight years, not only very pleasant and interesting reading, but also excellent in description on account of his peculiar style of giving a correct impression of life and customs with his descriptions of various locations.

This has been an excellent winter for traveling in California, and my wife and I have enjoyed outdoor life almost every day. We will now visit Salt Lake City and Denver a few weeks, then return home.

FRANK MCNAY.

San Francisco, Cal., Feb. 20.

WHAT HIVE FOR COMB HONEY?

A correspondent writes: "Would you please tell me which is the better hive for comb honey, the eight-frame or the ten-frame Langstroth? Last year I bought ten eight-frame Dovetail hives and put swarms in three of them. So you see I can't tell yet. Please advise in GLEANINGS, as I am a beginner. How is the Quinby hive? Tell how many sections you produced last year."

My present belief is that, for one who can not give his bees very much attention, the ten-frame hive is the safer. One who gives his bees sufficient attention, and uses two stories part of the year, may do better with the eight-frame hive. The advantage is on the side of the smaller hive for one who hauls his bees much.

The Quinby hive gives excellent results in the hands of the Dadants, and is held in high esteem in France. The size of the frames makes it still safer for wintering than the ten-frame Langstroth. For one who lets his hives stand unmoved it may be better than the smaller hives, but I have no personal knowledge in the case.

I had somewhere in the neighborhood of 1500 sections filled last year, and some of that was honey-dew that will be used for feeding this spring. C. C. MILLER.

Marengo, Ill.

A CORRECTION.

I notice some error in the mention of my entrance-closer in Straws, p. 166. Not 60, but not less than 160 hives an hour can be *closed* with my entrance-closer. This estimate is based on the experiments by inexperienced hands, one making it in 15 seconds, the other in 20. This would make an average of 205 per hour. At any rate, I am certain that bee-entrances can be closed with said closers at the rate of 200 per hour in L. hives of *various sizes in same yard.*

The detaching of the entrance-closer from the hives takes less time than above mentioned. L. KREUTZINGER.

Chicago, Ill.

[The error is not Dr. Miller's. He copied the figure from Pickings, p. 124, and Stenog found it in the *Review.* We now leave the matter with Mr. Hutchinson.—ED]

WILL DEEP SNOW SMOTHER BEES?

In answer to the above question I would give as an answer a decided no. I see on page 22 a short editorial, "Snow around the Entrances of Hives." I myself used to feel very uneasy about my bees when drifted over with snow, until I learned by experience that it would do them no harm, but, on the other hand, it was a great deal of benefit to them.

I can not explain better what I wish to say than to give you my experience along this line. As I have already stated, I used to feel very uneasy when a great snowstorm came along, for fear my bees would smother. In fact, I used to dig them out to ascertain their condition. I had never seen any thing written on this subject in any of the books or journals that I had ever read, therefore I think I am excusable for my feelings.

Last winter my bees were in 4 feet 11 inches of snow (actual measurement); and as the hives are on low stands you can easily figure out how deeply they were covered over. I use the eight-frame Langstroth hive with winter case for protection.

My yard is so situated that, when a storm comes, the hives are quickly covered with snow. When they were covered so deep last winter I found upon examination that there were three distinct crusts, any one of which would hold the weight of a man, caused by slight thawing after severe storms. In front of every hive I found a large hole thawed, about the size of a barrel, and no snow close to the entrance at all.

I always tip my hives forward so the snow melting at the entrance may not run into them. I always welcome lots of snow. I feel just like that neighbor bee-keeper of yours who said, "There is nothing I like to see better than my hives buried up in snow, because then I know they are going to winter well." But I would add thereto, "The deeper the better."

ITALIAN BEES NOT ALWAYS BETTER THAN BLACKS FOR GATHERING HONEY.

The season of 1897 the Italians were decidedly better, especially when the fall blossoms began to wane; but in the season of 1898 there was very little difference; in fact, the blacks and hybrids were a little in the lead as to amount stored. I. S. TILT.

Filion, Mich., Jan. 14.

BEES CARRYING AND STORING EARTH.

I saw something the other day I never did before since I have been in the bee business. That was, the bees packing the ground on their legs as they do pollen, and carrying it into their hives. They had a great hole carried away. The cause, I suppose, was a can of cylinder oil that stood there, and a gallon or so leaked out. What made them work on the oil and ground, for they have no use for them separate? WM. O. HEIVLY.

Raymore, Mo.

[At certain seasons of the year, especially in the spring, bees will carry away meal, or even fine particles of sawdust. Their attraction to the latter is doubtless due to the resinous properties of pine; and their carrying away the earth, as you describe, was no doubt due to the oil itself, as you suggest.—ED.]

THE MORE EVEN FILLING OF PLAIN SECTIONS.

I used to sell honey by the section here at 12½ cents each, and they generally held out—that is, 1 lb. to the section or over. They were the 1⅞ without separators. I am now using 1¾ sections without separators; and if well filled they hold a pound; but if the season is not good I find the sections are lighter. I tried a few of the no-beeway. I found them more even in weight than the others, and less bother to clean. I had fears, after I had ordered them, that, when *filled*, they would be more difficult to clean without marring the comb; but I was agreeably surprised. I would rather handle them than the old-style sections. JAS. S. WILLARD.

Bedford, Iowa.

DRAWN FOUNDATION NO ADVANTAGE.

I sent to you and got $1.00 worth of drawn foundation; put it on the 16th of August. We had a splendid flow for about six weeks. Bees worked it no better or quicker than they did your thin foundation. I thought you would like to know. L. P. BILLINGS.

Bloomington, Ill., Nov. 18, 1898.

BEGINNERS' QUESTION-BOX

BY E. R. ROOT

J. R. M. A., Ind.—If you have dark honey we know of no way by which you can improve its color. The only thing to do is to sell it to bakers, or feed it back to bees in the spring to stimulate brood-rearing.

L. J. E., Ind.—You can transfer by placing a box hive on top of a frame hive, closing all entrance to box hive except through frame hive; but a better way, and more satisfactory, and certainly much more rapid, is the Heddon short method described in our catalog.

M. F., Ky.—I can not understand why the bees should rush out of the hive in mid-winter and die on the snow unless they were diseased. If they had dysentery, the snow in front of the hive would be badly spotted, with a good many dead bees around and near the entrance.

J. F. O., Ont.—You can place your hives containing sheets of foundation on their stands, all ready to receive the first swarm. It will not be necessary to close the entrance, for robbers will never attempt to carry away mere wax or foundation Yes, you can use wired frames with ½ or even ¼ sheets of foundation. Bees will build new comb on the end of the sheets right over a wire, just as if it were not there; but it is an advantage to use full sheets, as there are times when the bees will build that portion just below the foundation into store or drone comb.

J. W. C. G., Ill.—I would set the combs from the hives in which the bees died, in a tight box or in a hive that is bee-proof. If there is any dead or chilled brood, perhaps it had better be cut out and buried or burned. While there is no such thing as spontaneous generation, yet matter like dead brood is a favorable medium for the growth of foul-brood germs if they are present in the apiary or, possibly, in the hive. But we have set away combs containing dead brood hundreds of times, and, so far as we know, no trouble ever followed.

A. K. B., Kan.—It will do no harm to let the bees get a little of the meal from the bin; in fact, some years ago we used to make a regular practice, in early spring, of spreading meal in sunny spots protected from the wind, for the bees to gather as a substitute for pollen; but in later years we have discontinued the practice, as it seemed to stimulate brood-rearing too early in the season. Ordinarily speaking, the first pollen from natural sources is quite early enough for the bees; for when there is real pollen to be had, then there is likely to be settled warm weather, and then there is no difficulty. Feeding this meal resulted sometimes in having combs filled full of it, sometimes almost solid — so solid, in fact, that it was of little use, as natural pollen later on seemed to be preferred.

EDITORIAL

BY E. R. ROOT

OWING to the general crowd of matter, I have reduced the editorial space somewhat in this issue. In the mean time I would call attention to the collection of excellent articles from different writers.

I HAVE just received an article from Harry S. Howe, who is conducting a series of apicultural experiments at Cornell University. He is Mr. Coggshall's crack bee-keeper—yes, his "lightning operator." At present he is a student in the university, and during his spare moments he is carrying on experiments relative to foul brood. He has just sent in an article that will give a little "aid and comfort" to R. L. Taylor. Well, I will not say more, for Harry is abundantly able to speak for himself, which he will do in our next issue.

HONEY ADVANCING.

I HAVE just learned from our Mr. Boyden, who buys our honey, that *good* extracted honey is really a scarce article; that while the same could be bought a year ago for 5 and 5½ cents, it is now necessary to offer 7, and it is difficult to get a good article even then. There was quite a sharp demand for both comb and extracted, prior and up to the holidays, and then it fell off for comb; but lately the demand has increased, so that comb honey is running up in price. A good article could be bought a short time ago for 10 cts.; but now I notice that "fancy" brings all the way from 12 to 14, and No. 1 from 10 to 13. All of this is encouraging.

WINTER LOSSES UP TO DATE.

THE reports that are coming in gradually from all sources go to show that losses will be almost as severe as we feared they might be earlier in the season. In New York, Wisconsin, Northern Michigan, Pennsylvania, and in our other States where bees are wintered in the cellar, losses will be very moderate. The outdoor bees in double-walled hives will come out in fairly good shape, according to reports; but it is the colonies in *single-walled hives on summer stands* that are going to suffer. It is the old story of the slipshod bee-keepers who are too busy or too lazy to put their bees in proper condition for winter who will be the ones to lose most heavily. It is these who demoralize the market. But it will be the thrifty, far-seeing, hard-working bee-keepers who get the honey and good prices this year.

MAKING YOUR OWN HIVES; FOOT POWER VERSUS GASOLINE AND STEAM ENGINES.

IN spite of the large supply factories over the country, there are scores of bee-keepers who make their own hives, frames, and foundation. A very few, perhaps, go so far as to make them with hand-saw and plane. But no one whose time is worth any thing can afford to fuss with hand-tools. A good foot-power buzz-saw is an acquisition; but after one has pumped the thing for half a day at a time he begins to wish heartily that he had a little steam-engine, or some sort of power that would take that "tired feeling" out of his legs; for it is a tremendous job to make hives with a foot-power buzz-saw, as I know from experience years ago before we had our factory. Steam-engines are rather complicated to run; the steam and water must be watched; and there has always been a fear that the "blamed thing would burst." But very lately gasoline-engines have been brought down to a fine state of perfection, so that any one can run them, and the cost of them is now so low that one can not afford to buy even a steam-engine. I believe also that, for economy of running, the gasoline engine on small powers is ahead of the steam-engine.

Ascertaining that the Pierce Engine Co., of Racine, Wis., were making an excellent engine at a low price, I solicited their advertisement, telling them that there are hundreds of bee-keepers, doubtless, who would patronize them if they only would let themselves be known through our journal. Their card will be found in another column, and I suggest that our readers who are interested write to them for their catalog and price on one and two horse-power engines suitable for running a buzz-saw for doing light work.

If you buy one of them, after you get your shop all rigged up get a photo taken of the inside and send it to us, and I'll show you up.

There is real fun, to one of a mechanical turn of mind, in making things; and even if they are not nearly as good as the factory goods, there is a sort of satisfaction in thinking they are your own make.

W. S. PENDER.

WE have just enjoyed a visit of several days from Mr. W. S. Pender, of Australia, one of the leading bee-keepers of his country. He is now making a tour through the United States in the interests of bee-keeping; and as he goes about from place to place he has note-book in hand, and jots down every thing he can pick up. He goes back to his own country expecting to take with him, or order shortly after, a full set of machinery, including engine and boiler, for starting supply-manufacturing in Australia.

His father, Mr. W. L. Pender, made a tour through this country during the World's Fair in 1893. Both the senior Pender and W. S. by profession are architects. Mr. W. L., as well as his son, has long had a side issue—bee-keeping—in connection with manufacturing bee-supplies. W. L. finally dropped out, leaving the supply business to the management of the boys.

Mr. W. S. Pender is one who has accomplished not a little in the interests of bee-keeping for New South Wales. It was through his personal influence that the unjust restrictions regarding the mailing of queens to Australia were removed, so that now queens can be sent from here to Australia for 4 cents in place of letter postage, or about a dollar.

Mr. W. S. Pender has also distinguished himself as a queen-breeder, his choice stocks being of the five-banded sort. Among his other accomplishments he is a microscopist, having made the study of foul brood and of bee-paralysis a specialty. He has written considerably for the bee-journals of America; has been connected with various publications in Australia; and it is safe to assume that there is hardly a bee-keeper in all Australia who is better informed than he.

Gleanings predicts for the firm of Pender Bros. a bright future; and although they will doubtless enter into direct competition with ourselves we wish them all success.

THE SEASON IN CALIFORNIA; THE RECENT RAINS; PROSPECTS.

A WEEK or so ago it seemed to be an assured fact that the honey crop in California, north as well as south, would be an almost complete failure; but according to the newspapers, at the eleventh hour copious rains — yes, even floods—have been coming down in the northern part of that State. The following letter, under date of Mar. 16, from Mr. Martin, gave us a slight ray of hope:

> Yesterday was set apart by the good people of this city as a day of fasting and prayer for rain, and it commenced raining in the night, and the end is not yet. To show the feeling in the matter here I will tell you what one of the judges said: "If one day of fasting and prayer will not suffice we should have two days or more, or a genuine humiliation." Then he cited instances where answers had come to such humiliation and prayer.
>
> This rain has been coming down the coast for two days, but heretofore the rains have gotten to about such a point and then passed off to the east and left us in the dry belt. This time we are favored, and it commenced raining about midnight, and is coming in showers.
>
> J. H. Martin.
>
> Los Angeles, March 16.

A few days later another one came to hand under date of Mar. 25, giving still more hope, and here it is:

> Agreeably to my promise that I would write you again about our rains before your next issue, I would say that the rains in this locality have amounted to over two inches, and the weather has been quite humid for the past week, with occasional mist. The central portion of the State has received a greater amount of rain than we have. Northern California has received more yet. I have recent advices from Siskiyou Co., and the farmers and the miners are jubilant over the prospects. In fact, all California is wearing a smile. Grain that was sown early had become withered, and it looked as though it had been run through an oven; but under the influence of the rains it is putting on new life, and the fields are green again. I notice that sage has made a good growth here, and I am sure that, with later rains, it will yield honey this season, for its blossoms will be two or three weeks later than usual.
>
> At this writing we have every indication of more rain; the skies are almost in a dripping condition. The blessings of Providence through the rains are of untold value to this country.
>
> J. H. Martin.
>
> Los Angeles, Cal., March 25.

And here is another letter, from another correspondent, dated Mar. 25:

> This is the fifth day of an abundant rain in this part of Northern California (Sonoma Co., 50 miles north of San Francisco). Abundant crops are now assured for orchards and vineyards; and pasturage, which would have suffered with only the 6 inches of rain which previously fell will now be ample with the 19 inches to date and the probability of more falling. The fruit-bloom is nearly over in this section, and bees have done well, having stored considerable surplus.
>
> Frederick Webley, M. D.
>
> Santa Rosa, Cal., March 25.

Probably it is too early yet to form much of an idea of what the honey season will be in *Southern* California. It will be short, probably, but even then it will save the remaining bees and doubtless millions of dollars' worth of fruit besides, as well as general farm products. May these showers of God's blessing prove to be a spiritual uplift.

While the winter has been severe, we here in the East have hopes of a large amount of clover. The frequent rains and great amount of snow give us room for encouragement.

LATER ENLARGEMENTS AND IMPROVEMENTS AT THE HOME OF THE HONEY-BEES.

ELSEWHERE we have referred to the fact of our having just installed a 400-horse-power Babcock & Wilcox boiler, costing an even $3200. Our old boilers, consisting of a battery of three, of 60 horse power each, have long proven inadequate to do the work. At the beginning of the season we were in hopes that they would be sufficient to enable us to get through this year at least; but as the season went on, it became very evident that we should have to increase our boiler capacity, and that right speedily. There was not room to get in another 60, so the only way was to put in one big unit and throw out two of the old 60's.

The engineer just informs me that we are developing something like 325 horse power. Every machine in the establishment is busy. We have one planer alone that takes anywhere from 25 to 40 horse power to drive it; a band-saw that takes another 30 horse power; a hive-dovetailer 25 horse power more; big exhaust-fans to take sawdust and shavings away from the separate machines, that take, all told, something like 75 horse power more; and, as I said before, there is a 100-horse-power electric-power generator; two 60-horse-power electric motors; two 5 horse power; a 7½ horse; 2 horse, a 3 horse, a ½ horse, and a ¼ horse power. One boiler and one engine furnish the motor power for the entire plant. Our enlargements and new machinery recently installed enable us to keep up with our orders without running nights—a recourse that should be avoided wherever possible in the interests of good and accurate workmanship.

As our readers know, we are running all the departments, except those nearest the engine, by electric transmission. Two pairs of copper wires carry the power silently to the destined points, and there connect with the electric motors mentioned above.

The electric system, so far as tried, is very satisfactory. It is very expensive, but produces independent and regular power. The big planer has one 60-horse-power motor to run it. Whenever this big machine is started a switch is thrown in, and in a moment more the motor begins to whir. As soon as the planer job is finished the switch is thrown out, and all the power is stopped.

OUR HOMES,

BY A. I. ROOT.

Recompense no man evil for evil. * * Live peaceably with all men. * * Avenge not yourselves. * * If thine enemy hunger, feed him; if he thirst, give him drink.—ROMANS 12:17-20.

The sentiment of the above extracts from the 12th chapter of Romans is an exhortation that runs all through the Bible. The Savior's words especially seem to be full of the very same idea. He said, "Love your enemies; do good to them that hate you;" and, in short, the whole spirit of the Bible seems to plead with mankind to forget and forgive. Let go. Never mind. Even if a man has wronged you and abused you, do not lay it up against him. It is not worth while. Sermons have been preached on this point ever since the world began; but somehow mankind seems to be of *earth* and not heaven, notwithstanding. Not only unregenerate humanity pays people back in their own coin, but even church-members forget themselves, and return *evil* for *evil*. Yes, in spite of all *my* teachings and exhortations on this subject, even *I* let spite get into my heart. Well, a new thought has been coming to me lately along this line. When we get where we can really love our enemies we sometimes make the wonderful discovery that they are *not* enemies after all. We were making a mistake. I have had some pleasant experiences in this direction. Somebody who, I felt sure, disliked me, and who seemed to take pleasure in hitting me a clip, comes out in a new light. He says in actions, if not in words, "Why, bless your heart, Mr. Root, I am not an *enemy* of yours. I like to poke fun at you about your queer ways, and sometimes I smile to see you fighting your battles against selfishness like the rest of us; but I have never laid up any thing against you; and when you come right down to it I am more on your side than anywhere else." Then it begins to occur to me that one of my besetting sins is in being in too great a hurry to think evil where no evil is really intended. Sometimes I am accused of having too much faith in people; but, oh dear me! if I do once in a while get imposed upon, there are other times without number when I do not give people half the credit they deserve; and, oh how it does rejoice my heart to find out that some persons (some of the boys, perhaps) are a good deal better people than I had given them credit for being. Let us now apply these matters to the actual business of every-day life. I wish to submit to you a letter that came to us almost a year ago.

Gentlemen:—For the $2 60 inclosed, please ship me the following goods as soon as possible, and prepay the freight, and send me freight-bill, and I will remit the freight by mail. T. D.
May 27, 1898.

The goods went promptly; and when connecting lines refused to carry them any further without prepayment of freight (for friend D. lives at what is called a "prepaid" station) we sent promptly the 43 cents to have the goods go on through, and the book-keeper asked him to remit us the 43 cents according to promise in the above letter. Nothing was heard from him, however, until the following, which came about a month after the first letter:

The A. I. Root Co.:—The wire netting I ordered of you May 27, which you shipped June 4, has never yet reached me. Please trace it up as quickly as possible, and have it forwarded through at once. T. D.
June 28, 1898.

On receipt of the above we sent a tracer, but this tracer seemed to do but little good, as you will see by the following:

Gentlemen:—I have your card, dated July 2, saying you had sent a tracer after the roll of wire netting I ordered from you May 27; but up to this time I have not yet received it. I can not wait any longer for it, as I wanted it to make a poultry-yard: and if you can't find it you must either send me a roll at once or return my cash by return mail. I hope you will give this your prompt attention.
July 16, 1898. T. D.

The above illustrates a thing that comes up a good many times in business—yes, a good many times in a *large* business. A railroad company does not often lose goods, but a loss happens once in a while; and a good many of our customers seem to take it for granted that we do, and ought to by rights, pay the money back when the goods do not come. In such cases we have to explain that we can not do this. After we hand the goods over to the railroad company according to order, our responsibility is at an end. Of course, we present a bill to the railroad company, and follow the goods up until the company does make good the loss; but sometimes it takes almost a year to get the money back, and in years past we have actually lost several hundred dollars by peculiar combinations of circumstances. Just as soon as we can get the money back when the goods are lost and can not be found, we return it to our customer; and where delay on account of the loss of the goods makes much trouble we often send them again upon a written promise from a good man that he will take *both* lots in case both reach him. To undertake to make good all losses in transportation is more than we can stand with the small profits we make on our goods. I know seedsmen often guarantee safe delivery; but they charge enough so they can stand the occasional loss of a package. We explained the matter in answer to the letter above, but heard nothing more about it until we received the letter below:

Gentlemen:—The wire netting I ordered from you May 27, and which your bill shows to have been shipped June 4, has never yet been received. And I therefore inclose you the bill and bill of lading, and you will please put in the bill to the railroad company, and make them pay for it as soon as possible, as I don't want to lose it. Please attend to it at once for me; and as soon as you get it keep out the freight charges on the wire and send me the balance. You will please give this prompt attention.
August 1, 1898. T. D.

The above letter seems to be in the right spirit; and at the close of it you will notice the first mention of the 43 cents we advanced. And now comes a strange thing in the proceeding. The railroad company sent us word that the goods had been traced up according to our orders, and delivered to friend D. a long while before his last letter was written, and our book-keeper then decided to give up the 43 cents advanced, and let it go, and pronounced our customer a bad man. The matter never came to me, for the transaction was so small that it was not considered worth while. Friend D. never replied, admitting that he had received the goods, nor did he ever send us the 43 cents. The book-keeper decided that D. was trying to get pay for the goods *after* he had received them. The railroad company made some sort of report—at least the book-keeper thinks so*—that by some means he got the goods without signing a receipt for them; and the book-keeper thinks friend D. felt vexed because the railroad company had delayed them so long, and was going to try to get the said company to pay him for them, even while he had them in his possession. Now, I do not believe this can be true. The letters sound honest and straight; but at this late date it may be a hard matter to get at the real facts in the case. We will now let the above rest for the present. When the letter below reached us, as the cash was inclosed it did not come to the book-keeper at all:

> *Gentlemen:*—Please find inclosed my check for $10.50, for which please ship me by freight two bushels of alsike clover seed. Send bill of freight, and I will remit it to you in stamps. Please ship as soon as possible; also please quote me your wholesale prices on 5 to 10 rolls 48-inch 2-inch-mesh poultry-netting.
>
> Feb. 28, 1899. T. D.

As the above order was for alsike clover it came into my department, and in the spring of the year all of my helpers have strict orders to *rush* clover seed, for it is exceedingly important that it be put into the ground at just the right time. But no one noticed that it was from the man who owed us the 43 cents for freight prepaid last year; but when they applied to the book-keeper for the money to prepay the freight so the seed could go on, he replied at once to the effect that we had advanced money to that man about a year before, which he never paid; and I do not know but he smiled a little bit when he put the two items together and informed our friend and customer, that, on receipt of 72 cents, covering both items, the seed would go on. Permit me to say here that I knew nothing of this transaction whatever. If it had come to my notice I would have said, "Why, this man has sent us $10.50 in cash, and it is very important that the seed be rushed through as he directs. We certainly can not think of stopping a shipment worth $10.50 for the paltry sum of 29 cents."* But I did not see it, and so the matter went along, and the letter inclosing the 72 cents came very promptly, you may be sure, and here is what came with it:

> *Gentlemen:*—Inclosed please find 72 cts., balance due you on freight on wire netting and alsike clover seed. Please ship the seed as soon as possible. By the tone of your letter you think, I guess, that I am not a man of my word, and that you are afraid to trust me to the freight. I can buy more goods on time than A. I. Root is worth, if I want them; and as you act so little about such a small sum of 72 cts., I don't think A. I. Root has any more religion than a cow has; and this will be my last order to you while I live. I had intended to remit to you freight on netting and clover seed as soon as I got a freight bill; but it is all right. You can ascertain my standing by writing to the list of references I gave you. T. D.
>
> March 8, 1899.

The above letter came directly to me. In fact, the lady who opens the letters makes it a practice, by my express desire, that any thing reflecting severely on myself or on the standing of our company, shall be submitted to me at once if I am around. The first thing we did was to direct the connecting railroad line, where the seed was stopped, to start it going as soon as possible. Then I wrote as follows:

> *Friend D.:*—Yours of March 8 was answered by Mr. Calvert yesterday, and then referred to me. The stopping of your goods for the small amount demanded by the railroad company before they would ship any further was entirely in the hands of the book-keeper. I knew nothing about it at the time or I might have done differently. The book-keeper declined to open any further account with you because he had not succeeded in getting the small balance that we advanced last summer under similar circumstances. Furthermore, I find you wrote three or more letters complaining that you had not received wire netting, one of them dated as late as Aug. 1 last season. The book-keeper says that the railroad company shows the goods had been delivered you long before that date. Now, I am sure there is a mistake or misunderstanding somewhere. I do not believe you would keep writing us, "Goods have not come to hand" if you had received them; but you have never made any explanation of this matter, and never paid the small sum we advanced. You may be aware, perhaps, that we have lost quite a little by advancing similar sums in order to get goods to destination. I can not find by the correspondence that you ever agreed to pay this money we advanced as a kindness to you. We are not responsible for delays on the part of the railroad companies nor for loss of goods. Again, when you made the order this year you did not say a word about that little balance remaining unpaid. Had I known of it, knowing that your two bushels of clover seed ought to be in the ground, I would have paid the money out of my own pocket rather than to annoy you in this way; but you certainly can not blame our book-keeper very much under the circumstances. Now friend D., I am not going to talk hard to you, even though I do think you are greatly to blame, and I am very sorry

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* Please do not think, dear friends, that I am putting any blame on our book-keeper. The head book-keeper occupies a very important place, and I think most business men would prefer to have their book-keeper err a little in being over-careful rather than being too loose in the matter of handing over hard cash. When we *sell* goods there is supposed to be some profit to pay for the expense of keeping books, paying for postage-stamps, etc.; but where we take cash right out of the drawer, simply to do somebody a kindness, and ask him to please return promptly just the amount we have advanced, there is no sort of profit anywhere. We neglect our own business, give our time, and if the friend who has been accommodated does not respond promptly, we waste postage-stamps also. I suppose more or less of this kind of work has to be done; but a good book-keeper doesn't often get caught the *second time* in that way. If the proprietor decides to throw away some cash just because he wishes to help a customer get his clover seed in the ground in proper time it is all right; but the book-keeper is not expected to take such responsibility.

* I presume our readers are already aware that we guarantee freight on every thing we ship by freight or express. The railroad company, knowing we are responsible, usually push things along to their destination without delay; but these prepaid stations seem to be an exception. In the letter dated Feb. 28, 1899, T. D. says, "I have no agent at our station." If there were an agent there, of course he could hold the goods until the back charges were paid. All through Florida, and in many new regions of the country, the railroad companies frequently, for the sake of accommodation, drop freight almost anywhere out in the country, the only condition being that the charges be fully prepaid, for a train of cars can not stand still waiting for somebody to make change, even if he were on the spot when the train arrives. I make this explanation in order that some of our friends may have more charity for the railroad companies.

your clover seed did not go right along without any delay.

I am very glad indeed if you are so well fixed; but I *do* think you might take better care of little amounts where cash has been advanced simply to do you a favor. The goods were shipped from here promptly, but were stopped by connecting lines at Bellaire.

Yours very truly,
A. I. ROOT.

P. S.—Since the matter has been called to my attention I have decided that we can make the two bushels of alsike $10.25 instead of $10.50; therefore we inclose in this stamps to the value of 25 cts.

Now, dear friends, I have a double purpose in submitting this whole matter to you. It illustrates the way in which hard feelings and bitter words come up. It explains, too, why it is that so many people feel bitterness and hate toward the railroad companies. Ever since we have been in business we have been greatly annoyed by having goods stopped, by express as well as freight, because connecting lines would not carry them any further without having the charges paid in advance. The reason of this is, that railroad companies so many times carry goods long distances, which are never called for at all. Sometimes people go and inquire about the charges, and then leave the goods, and never go after them. Perhaps they laugh about it, and say they will just let the railroad company keep them. Potatoes are frozen in transit. The consignee shakes the barrel, concludes they are frozen and worthless, and goes off leaving them on the railroad company's hands as if the latter were responsible for the blizzard. There are thousands of like cases. Sometimes the company collects the freight charges of the shipper, but may be it will cost more than they are worth to do this.

Again, some railroad companies are more accommodating than others. One company receives goods without asking any advance;* but when they turn them over to another line this line refuses to take them any further without payment in advance. Now, the *agent* of the company has no authority to take even so small a sum as 29 cents, and prepay the charges on $10.50 worth of clover seed; therefore the goods must be held until they send word back to the shipper. Well, now, the shipper may have had lots of experience like that of our book-keeper. He has paid a few cents for A, B, or C, and then used some postage-stamps and time to explain the matter, telling him they advanced the hard cash just to do him a kindness; but too often A, B, or C lets it go and forgets it, or says to himself, "Well, I guess I paid him enough for his clover seed, anyway. I think he can stand the 29 cents;" and pretty soon the shippers get to be like the railroad companies. They say, "We do not hand over the cash for anybody." You may, perhaps, be aware that many of the large department stores that sell on such small margins are following the same plan. And, by the way, I wonder if our friends realize the expense of keeping a set of books necessary to have open accounts with thousands of people scattered all over the land—especially the expense necessary to send repeated statements to people who will not say a word for almost a whole year.

Now, there is another side that might be taken up. There is usually but a small profit on clover seed, it is true; but in the above case there was sufficient profit so we could have afforded to lose the 29 cents, even in case he did *not* pay it; and had I gotten hold of the transaction this would have been done. Yes, I think that, according to the spirit of the string of beautiful texts at the head of my talk, I might have done still more. If a man has bought some clover seed of me which ought to be put into the ground at once, and even if it required me to advance *all* my profit, and a little more, in order to help him get his seed in at the right time, I think I would advance it. But, of course, circumstances would have much to do with a case of this kind. I believe the clerks all know my disposition to be liberal; and I do not know but sometimes they keep things from me because they know I would trust a man when he ought not to be trusted. Well, if this is true I am glad that I err on the side of charity and love. Our friend speaks of references that he could give us. Yes, he did give us references; but we could hardly be expected to write for references when a man asks for a credit of only a few cents.

And now let me go back to the original 43 cents advanced first. I suppose friend D. did not send it at first because he did not feel in duty bound to pay the freight until he had received the goods; and when it looked as if he would *never* get them, he did not see why he should pay any freight at all; and, in fact, he asks us to take this trifle out of the value of the goods when we receive it. As to why he did not send it *after* he received the goods, I can not answer, nor can I see why he did not include this 43 cents when he sent the $10.50 for the clover seed. Perhaps he forgot it. I do think he owes us an apology for asking us to collect of the railroad company the value of the goods which he already had in his possession, or he should at least explain matters in some way; but I still think, from the tone of his letters, that he means to be a fair sort of business man. In regard to his threat of not trading any further with us, such things never worry nor disturb me. We invest every year large amounts of money in advertising, it is true; but I have never yet wanted *all* of the trade. If I have *wronged* anybody, then I am worried; but if he decides to trade somewhere else when I am not to blame, it does not trouble me at all. What is my loss will be gained by some other brother; and I am sure of this, for the Bible says so. If I serve my fellow-men in an unselfish and Christianlike manner we shall always have plenty of patronage. The things to worry about are the sins in one's own heart, and not what his neighbors may do.

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* By the way, perhaps I should explain that, where a railroad company sends for advance payment, they bring up to our office a written request, but do not leave any copy of such request. They go to the book-keeper with the statement; but the statement is carried right away again. I have tried to get our clerks to copy every such request, and to keep the copy. Even a few lines scrawled with a pencil on a piece of waste paper should be copied and preserved. In the above case we have no means of knowing just what the railroad company did report besides what the book-keeper can remember of the transaction.

A good many times I am called upon to settle difficulties among bee-keepers. Both parties have got their feelings stirred up, and each decides the other is a rascal. Sometimes I plead repeatedly for more charity on both sides. There is one point I fear our friends often forget. Suppose a man advertises bee-supplies, and sends out a circular. Then somebody sends him fifteen or twenty dollars for goods, perhaps right in the midst of the honey season; but the supply-dealer, if he is just starting, and is doing a small business, is likely to be sold out. Then there is a delay that is expensive. Now, I always tell the man who receives the cash that he must be very careful about being harsh or severe with such a customer. When somebody sends us money we should treat him as we would an honored guest. If a visitor comes to your home when you are having almost a wrangle about something, how quickly you all put on a smiling face and drop the unpleasantness! The new comer is your *guest*, and you are in honor bound to be *courteous* and *pleasant* in the presence of visitors. Now, the man who sends you money for something should be in one sense a privileged character — a sort of honored guest, and he should be accorded unusual courtesy—at least until you have sent him his goods; and even after that you should be a little more respectful to him because he has *traded* with you. You are under no particular obligation to be courteous and smiling to every *tramp* that comes along (especially if he walks on your clean porch with his muddy boots); but common sense as well as Christianity requires you to be courteous and pleasant to people who trade with you. I would put up with a great deal without quarreling, from a man who sends me money through the mails. I would be very careful about calling him a rascal, or even an enemy.

I have gone over this just because I fear a good many of our beginners in business fail because they are not sufficiently ready to be courteous and obliging. A man who would send us $10.50 for clover seed could not well be considered an enemy; and I rather took pleasure in writing that little postscript where I decided to give him a little rebate on two bushels sent at one time, over the printed price for a single bushel. I hardly need mention how much time and money are *worse* than wasted in neighborhood quarrels. Yes, every little while we hear of people who lose their health by getting into a quarrel, and quite a few have lost their lives by simply allowing themselves to get into a fit of uncontrollable anger. "If thine enemy hunger, feed him; if he thirst, give him drink."

Mar. 28.—The following is just at hand.

> I ordered the wire netting from you early in the spring, and it did not reach me until November. This I can prove to you by my postmater here, who keeps the wareroom where goods are kept in as they are unloaded from the train. The reason I did not send you the freight on wire netting any sooner last year was that I did not want to pay out money for freight and be out of the wire netting also, and not get the netting when I needed it so badly. I had intended to order a lot of bee-supplies from you, and then include the freight on wire netting, but I forgot it when I ordered the clover seed. T. D.

HIGH PRESSURE GARDENING

BY A. I. ROOT.

GRAND RAPIDS LETTUCE AS AN ORNAMENTAL FOLIAGE-PLANT.

There is nothing that pleases me more in the way of foliage-plants than a bed of Grand Rapids lettuce when it is just doing its "prettiest." I told you last fall about replacing the soil in our greenhouse-beds, the same that had been there for five or six years. Well, in filling the beds anew I made up my mind that I was going to have the best combination to make plants grow that I could scrape up. First we had a pile of decayed sods that had been piled up in a heap for a year. We spread these evenly over the bottoms of the beds. Then we got some old black manure mixed with soil that we scraped up where an old barn had been taken away. We put on perhaps two or three inches of this. Then we put in about an inch of sand, and with this as much wood ashes as I thought the beds would bear —perhaps a quarter of an inch thick all over. Then we were ready to work it all up together. After sifting the top and making it smooth and level, we put on about a quarter of an inch of tobacco dust, to keep off the green fly. Well, this compost seems to have been a success. I never saw lettuce-plants grow nicer, and there has been none of the spots in the beds where nothing would grow that we had been noticing for some two seasons past. And, by the way, some of the boys felt so sure that well water was not as good for watering, especially in the greenhouse, we made different arrangements for watering. Very likely the hard water would not make so much difference in the open air, for we always have showers to dilute and wash off the effects of the hard water. The water from our hydrants is not hard, but it contains a large amount of soda — so much that in the greenhouse it makes the ground and sometimes the plants show a whitish powder where it has been used. Well, the lower part of our greenhouse has always been more or less wet in the paths after a rain. We have tile drainage, but our stiff clay, after being walked on so much, gets so it holds water in spite of the three drains. On the south side of the greenhouse there is a path that is lower down than the rest, and this has always been more or less muddy. At each end of this path we sunk a two-foot length of 18-inch sewer-pipe. We let it down into the ground so that it was a little lower than the level of the path. On top of this is a wooden cover, to make it safe to walk around, even in the night. Well, by lifting this wooden cover a pail or watering pot can be filled at any time; and so far during the past winter there has always been water enough in these little cisterns to supply the plants; and whether it is the water or the new soil, or both, at any rate we have a growth of lettuce and other stuff that just makes me happy.

Now to go back to the starting-point, I

would almost go to the pains of growing a bed of Grand Rapids lettuce just to look at, even if it had no value. The price has been down during the past winter because others are growing it; but even now we get 15 cents a pound retail and 10 at wholesale, and I think this pays very well. I do not know just how many pounds of lettuce can be grown on a square yard; but where it is managed just right, I tell you one can get a big lot.

CRIMSON CLOVER.

Once more crimson clover has wintered beautifully on our rich well-underdrained soil. As this is the fourth or fifth winter, I think we might call it a very sure thing in our locality and with our method of treatment. You may remember I told you of the wheat that lodged so badly last summer. There was enough seed left on the ground to make a very good stand. Well, the wheat grew so tall last fall that it fell down, and we sowed crimson clover right on it some time in the fore part of August. The clover was shaded and mulched, and it looked beautiful all during the fall, and looks just as handsome now; in fact, I do not believe I ever had any crimson clover that came through the winter looking so bright and green before. There are a few small spots where there didn't happen to be any wheat, and on these spots the severe weather has pretty nearly used up the clover; but the stand all over is, with the exception of these spots, just splendid. Of course, the wheat will stand up and grow; but I propose to turn the wheat, clover, and all, under just before the crimson clover gets into full bloom; and although I never heard of turning under wheat to grow potatoes, I am inclined to think it will work all right. Perhaps it is not practicable to furnish any sort of protection like this for crimson clover during the winter — that is, to do it profitably; but I think the clover would be a great deal better if it could have just about the kind of mulch that my lodged wheat gave it.

RECOMMENDING NEW VARIETIES OF STRAWBERRIES, ETC.

You may remember that, some little time ago, in visiting Matthew Crawford, he showed me a strawberry of such wonderful luxuriance of foliage that, had he told me it was a new variety, and very scarce and high-priced, I do not know but I would have given him $5.00 for a single plant. But friend Crawford is not that sort of man; and then he explained to me that the wonderful growth and luxuriance were not altogether on account of the plant, but in the way he prepared the soil in that one bed. It was light sandy soil, made very rich with old stable manure, and then the ground was pounded as hard as he could make it, with a stamper, something like what we use in setting fence-posts I went home and began to experiment on some of our plant-beds that had been manured so heavily so many years that they contained almost *too* much humus. We have a pounder worked by two men, that we use in making cement floors and similar work. I had two of the boys stamp the dirt in one of our plant-beds as hard as they could pound it. This was along in the fall, when the ground was dry, and would bear such pounding without injury.

About this time friend Thompson sent me half a dozen Darling strawberry-plants, and I think as many of the Earliest; also some Carrie. As he called these varieties all valuable I put them into that stamped bed. They all did wonderfully well, especially the Darling. In watching the new plants I fear I forgot somewhat the stamped bed, and gave the credit to the new varieties. At the same time I began experimenting with plants potted in jadoo fiber, and a great number of them were sent as premiums to our subscribers. The next spring these six Darling plants gave a nice lot of beautiful berries, away ahead of any thing else unless it was the Earliest; and without thinking much about it I helped to boom the Darling, which the originator held at a very high price. Now, I have been greatly disappointed because we have not had more favorable reports of the Darling. In fact, on that account I have dropped it from our list of strawberries. Margaret and Nick Ohmer were also set in a pounded bed, and they both made an immense growth, and produced wonderful berries. I have been putting all of my new varieties in pounded beds, because, when one is anxious to get as many plants as he can, as soon as possible, he must furnish the best of conditions; and not *all* plants will pay him so much better in highly fertilized and compact beds than they do in the open field. After I put the Darling and Earliest in the open field and gave them the same chance as the other varieties they have been very disappointing in our locality. I learn from others, though, further south, that in some places they do well.

From this I have been learning a lesson: We should be careful, each and all of us, about recommending a new plant before we have given it *field culture* right along with the others. Perhaps I might here speak of the Gault raspberry. There has been a good deal of complaint, and quite a few have called my neighbor Gault a humbug and a swindler. Now, this is very wrong. Mr. Gault did grow, and I suppose even yet grows, Gault raspberries by the acre. On his soil and with his treatment they bear splendid crops away along till frost; and I think they do year after year. When I was regretting that I invested so much in the Gault raspberry, and gave it so much of a recommend one of my boys remarked that they had some plants at home which they got of me, and they were doing splendidly, and bore nice crops every year. A second and third person in my employ said substantially the same thing. They declared they did not consider this raspberry a humbug at all; but the plants that we sent all over the country, far and near, have, so far as I can learn, been *mostly* failures. If our readers will forgive me I am going to be more careful in the future. I will tell you how things have done on *our* grounds; and if I deem them worthy I will furnish you sample plants or seeds at a very low price; but we should all learn better than to invest heavily in any thing until we have tried it on our own ground. The above was suggested by receiving Bulletin 98, on small fruits, from the Ohio Experiment Station. Here is what this bulletin says about the Darling:

> An early variety that gives fairly good results the first part of the season, yielding one or two good pickings. After that the berries run very small. It can not be recommended as worthy of further trial.

I am a little surprised that they did not say something about its being *extra* early. Their report on strawberries is mostly on the new kinds; and I confess it was a real pleasure to me to get an unbiased report from disinterested sources and from honest students in regard to the new strawberries that have been lauded so much through our catalogs. I think it will pay to send for this bulletin. Simply write to the Experiment Station, Wooster, Ohio. I will briefly go over what they say, mentioning some that are now much talked about:

The Clyde still ranks high, but they call it rather soft for shipping, and not of the highest quality.

Glen Mary they also recommend, but it is not quite as prolific as the Clyde, and is also too soft for shipment.

The Margaret is a superior berry, but must have high cultivation, and perhaps pounded beds such as I have described. It does not succeed under all conditions.

I am very glad to see they agree with me in recommending the Rio as one of the very best extra earlies. It is not only very early, but a nice large berry, very much superior to Michel's Early, Earliest, and all of that class.

Sample, after one season's trial, seems to warrant nearly all that has been said in its praise.

The Seaford they find rather soft, and not as productive as one might expect from the high recommends it has received.

Here is what they have to say in regard to strawberries in their summary on the last page:

> Strawberries require a large quantity of water, and this is usually more easily secured by thorough cultivation than by irrigation.
>
> In an experiment in soil culture in 1897 there were found to be nearly five hundred barrels of water more per acre in the cultivated than in the hoed plot. This influenced the growth greatly, and in the succeeding season increased the crop from 10 to 68 per cent.
>
> In cultivation it is better to use a plank clod-crusher, at least half of the time, rather than a cultivator all of the time.
>
> The newer varieties of strawberries most highly commended are: Beauty, Berry's No. 2, Brownie, Clyde, Enormous, Glen Mary, Jerry Rusk, Noland, Orewiler, Sample, Superb.

This bulletin also includes reports on new raspberries, blackberries, currants, and gooseberries.

Matthew Crawford writes in a recent number of the *Strawberry Culturist*:

> The man who believes that a horse-chestnut carried in his pocket keeps off the rheumatism, or that a horseshoe over the door keeps off spooks, can not be convinced to the contrary; so the man who *knows* that selection is the great thing in strawberry culture, *especially if he has plants for sale*, can never be moved. These positive people have lots of followers, because the majority of people like to have some one to do their thinking.

It seems to me there is too grand a truth in the above to have it dropped and lost sight of.

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In order to clean out from our branches all that remain of last year's stock of fences, and supers packed with them, we offer them while they last at a sufficient reduction to make them move. Last year's fences, though not perfect, can be used by those who prefer cheapness to perfection. The cleats are ½ in. wide, where we now make them $\frac{5}{16}$, and 12 to 2 inches thick, while we now make them 13 to 2 inches. Slats are a little closer together in some cases than this year. These changes are so slight as to be scarcely appreciable in results. There is some stock at all of the addresses given below, which we offer while it lasts, as follows:

'98 P fences, 60c per 100, $5.40 per 1000.
'98 I " 75c " 6.50 " 1000.
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'98 2P or 2I-8 supers $1.10 for 5; $ 2.20 for 10.
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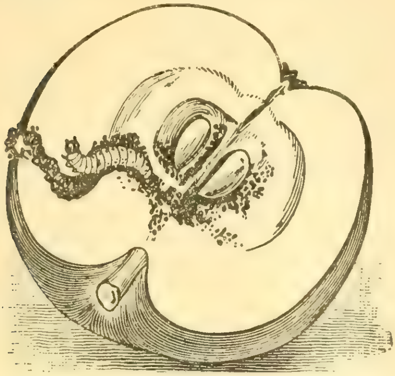

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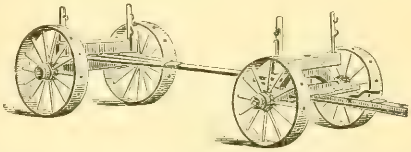

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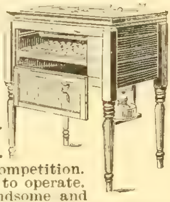

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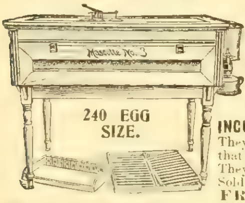

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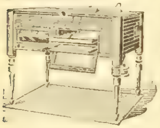

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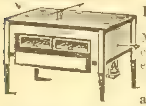

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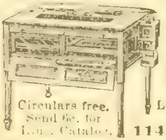

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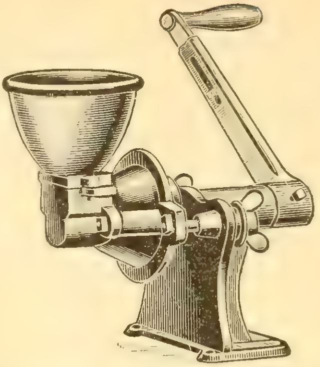

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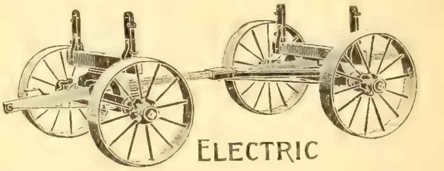

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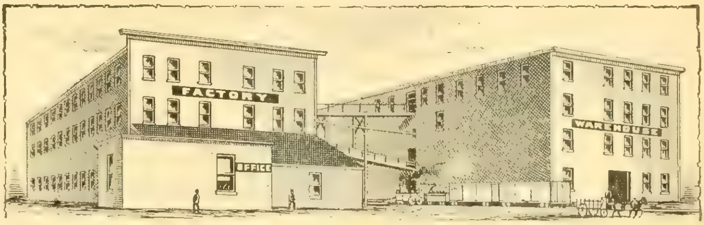

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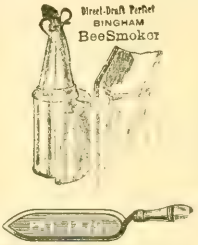
January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

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Honey and Beeswax.

Liberal Advances made on Consignments.
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THE WHY OF IT

Noise Isn't Everything. The street band will attract a crowd, but symphony concerts continue to be well patronized.

Noisy claims for recognition have no permanent effect on bicycle buyers, as the evidence must be heard before the money is paid.

We claim nothing that the record will not substantiate.

The Cleveland bicycle is to-day accepted as the world's ***Standard for Excellence.***

Do You Ask Why? Then listen.—The Cleveland was the first bicycle of standard type to be built and marketed in America. That it has always been a ***good*** bicycle is best shown by the growth of our business. We to-day own and operate four factories making nothing but Cleveland bicycles, with an output and acreage of floor space greater than any other exclusive bicycle factory in the world.

The Cleveland is the only bicycle embodying such exclusive features as Burwell Ball and Roller Bearings. Burwell detachable tires and Cleveland hardened block and pin chain.

CLEVELAND BICYCLES

The Burwell Ball and Roller Bearing saves the rider; it runs easier and is thoroughly dust proof. Its life is ten times greater than the best ordinary bearing as has been shown by severest tests. The Burwell detachable tire is easier to repair when punctured (you can do it yourself), more resilient and dependable than any other. The Cleveland hardened block and pin chain will stand more usage and show less wear than any other chain or combination of gears on the market. When used with our gear case it gives the maximum of safety and convenience with a minimum loss of power.

The Cleveland has led the reformation in bicycle construction. A few years ago we astonished the world by producing a safe and durable mount at 40 lbs., when all others weighed 60 lbs. and over. We are to-day manufacturing bicycles at 21 lbs., weight for ladies and gentlemen—the lightest bicycles made for road use.

The Evidence summed up shows that ours is the only bicycle on the '99 market embodying new and valuable improvements. Cleveland bicycles are handled by the best trade the world over. Prices from $35.00 to $75.00. Send for catalog. No. 14.

H. A. LOZIER & CO., Mfrs.,

CLEVELAND, OHIO.

BRANCHES:—New York, Chicago, Boston, Philadelphia, Buffalo, Detroit, Toledo, San Francisco, Toronto, London, Paris, Hamburg.

FACTORIES:—Toledo, Ohio; Westfield, Mass.; Toronto Junction, Ont.; Thompsonville, Conn.

SPECIAL NOTICES BY BUSINESS MANAGER

OILED COTTON GLOVES FOR HANDLING BEES.

Some of the large honey-producers in New York State and elsewhere have been using, for handling bees, gloves made of heavy cotton drill soaked in linseed oil, and dried. The oil treatment, when properly done, makes the gloves sting proof. We have a sample pair of these gloves, and have made an order for a supply for stock. They are made in three sizes—small, medium, and large. The small correspond to ladies' sizes in rubber; the medium to gents' sizes, and the large to extra sizes. The price is 50 cents a pair. We shall not be prepared to supply them before May; but in the meantime we shall be pleased to book orders for samples, if any wish to try them.

THIN-BASE FOUNDATION.

We should like to hear from those interested in the new thin-base foundation. If enough interest is taken in it to warrant, we will increase our facilities for making it so as to reduce the cost, and thereby get the price down to perhaps 75 cents a pound this season. Bear in mind, it has high walls as well as thin base. There are about 5 pieces in thickness to an inch, so that it occupies about 2½ times the space of the same weight of ordinary super foundation. It is neatly packed in paper boxes of ½ lb. and 1 lb. each, and in sizes for the 4¼, the 4x5, and the 3⅝x5 sections. Prices, for the present, as given in last issue of GLEANINGS. Send for small free sample if you want to see what it is like before you order.

ADVANCING PRICES.

The scarcity of metals of various kinds results in continually advancing prices. We ordered a carload of tin plates early in December, and have not received them yet, and have no definite assurance when we shall get them. In the meantime prices have advanced over thirty per cent. We recently placed an order for a carload of nails at $12.00 a ton more than we paid in December. Five-gallon square cans have advanced 10 to 12 cts. per box of two cans, and other tinware in about the same proportion. We are fortunate in having a good stock. We will not advance our prices till compelled to do so, but that may be very soon.

ONE-GALLON SQUARE CANS.

We have sold so far this season, mainly for maple syrup, about 13,000 one-gallon square cans, and we have 6000 more just arriving from the factory. Most of these have 1¼-inch screw cap, and we sell them at $1.00 per 100 less than the regular lever-seal can shown in our catalog. Some have a large 2¼-inch cap in the center of the top of can, with a wire bail. These are 25 cents per 100 more than the small caps. Price of these cans, with 1¼-inch cap, $9.00 per 100; $80.00 per 1000; with 2¼-inch cap, $9.25 and $82.50 respectively. These prices hold only while this stock lasts. If they go off as fast as previous stock, they will not last ten days. Send in your orders if you want any.

BUSINESS AT THIS DATE.

Last year we received during the month of March about 2000 orders, while this year in the same time we have received about half that number. A year ago we began running night and day the first of March; this year we are turning out as many or more goods during an 11-hours' day run; and unless business increases very materially we shall be able to get along this year without running nights. With the exception of some carload orders we are shipping orders promptly. In some cases, where odd or special goods are ordered there is a little delay. We are gaining fast on carload orders, and expect, by the middle of April, to be pretty well caught up.

CARLOAD SHIPMENTS.

Since reporting the middle of February, we have shipped over thirty full carloads as follows: One to Prothero & Arnold, Dubois, Pa.; one to W. W. Cary, Lyonsville, Mass.; two to Geo. E. Hilton; one to Thomsonville; the other to Fremont, Mich.; one to O. P. Hyde & Son, Hutto, Texas; three to our branch at Syracuse; one to Philadelphia; one to St. Paul; one to Sacramento, Cal., and one to Los Angeles, Cal. The latter was ordered back before it had gone far, because of the continued drouth. One to Rocky Ford, Colorado; one to Vickery Brothers, Evansville, Ind.; one to A. F. McAdams, Columbus Grove, Ohio, sixteen carloads for export, besides four more going within a few days. We are sending a very large car for Salt Lake City, Utah, and another for Reno, Nev. This will still leave six or eight cars not shipped, for which we have orders entered. We have shipped one-half more cars this year than we had shipped up to the same date last year. We still have a large stock to draw on, and are in very much better condition for filling orders promptly than we were a year ago.

NEW BOILER.

We now have our new 400-horse-power water-tube boiler connected with the new engine, and we are no longer troubled for lack of steam. The shavings and sawdust collected from the machines by the exhaust-fans furnish all the fuel needed so far, so that we not only need no coal, but have wood and kindling to sell. Our old boilers are for sale, at least two of them; will give particulars to those interested.

SECOND-HAND BICYCLE; A $75.00 CLEVELAND FOR $39.00.

As our readers know, every season I get a new wheel, simply for the reason that I like to keep up with the times; and so far I have sold these bicycles to some of our readers. My Cleveland, referred to editorially on page 142, is practically as good as new—a $75 00 machine, and it has all the latest 1898 fittings. I had it fitted up to order. I am an advocate of large tires, because they are so much easier-running and longer-lived. The tires on this machine are 1¾ inches wide and 2 inches deep; and for real solid comfort they beat any thing else I ever tried. The handle-bars are wood, and can be either dropped or raised. The saddle is the extra-wide Wheeler—the easiest saddle, to my notion, that was ever made. The chain is the celebrated Cleveland, hardened pin and link, and the sprockets are of large diameter. The whole is protected by a gear-case, and is nearly air-tight. I have ridden this wheel for a whole year, and I have not had to touch the chain during all that time. The price at which we offer this bicycle, for all practical purposes as good as new, the enamel and nickel being intact, is an even $39.00, or but little more than half price; and I would say that it is a far better machine than nine-tenths of the so-called high grades at $40.00 and $50 00

I have also a tandem, the list price of which was, in 1897, $150, and it cost us an even $104 It is one of the best machines that was ever built, and is in first-class order. We will sell this for an even $40.00. Particulars on application. It will be necessary to speak quickly in order to secure these bargains. If they are not exactly as we represent, they can be returned at my expense. E. R. ROOT, Medina, O.

Special Notices by A. I. Root.

SOJA (OR SOY) BEAN—REDUCTION IN PRICE.

Instead of $2.50 per bushel, as in our catalog, read $2.00 per bushel; peck, 60 cts.; quart, 10 cts. Leaflet mailed on application, telling all about this legume.

SWEET POTATOES FOR BEDDING GROWING PLANTS.

This year we shall handle only two varieties—the well known Yellow Jersey and the General Grant Vineless. Either kind will be, ½ peck, 30 cts.; peck, 45 cts.; bushel, $1.50; barrel, $3 50. If wanted by mail, 20 cts. per lb., postpaid. We expect to have them ready to send out any time during May. Sweet-potato plants of the above will be ready during June and July. Price of plants: 10 for 5 cts.; 40 cts. per 100; $3.00 per 1000. If wanted by mail, 25c per 100 extra.

THE BIGGLE POULTRY-BOOK.

I find we have ten copies of these still on hand unsold. Now the Biggle Poultry-book, is a little one, but it is the handsomest poultry-book, by all odds, for the price, of any thing out. Aside from the colored pictures of the fowls, there are beautiful photos from life, lots of little cuts that tell a good deal, and the whole is written in that bright racy style characteristic of the *Farm Journal*. This latter, as you know, is made up of valuable facts boiled down into a few words, and so with this poultry-book. The price, postpaid, is 50 cts. Perhaps I might mention that we had one single order for three dozen copies from Australia.

FROST; WHEN TO EXPECT IT, AND HOW TO LESSEN THE INJURY THEREFROM.

The above is the title of an exceedingly valuable bulletin from our good friend Willis L. Moore, Chief of the Weather Bureau. It explains all about frosts, in what way they do damage, and discusses most thoroughly all modern methods of protecting crops of all kinds from damage by frost and freezes. It considers the matter all the way from covering plants in cold-frames to protecting orange-trees in California and Florida. If you want it, send a postal card to the Weather Bureau, Department of Agriculture, Washington, D. C., and ask for Bulletin No. 23, on frost. This bulletin, if it could be in the hands of the proper people during the next few weeks, might save thousands of dollars. I have read it all through with exceeding interest, many portions of it several times over.

HUBBARD SQUASH SEED—ADVANCE IN PRICES.

I judge there must be a scarcity, for I notice the seed has pretty nearly doubled in price; and instead of the figures in our price list the best we can do until further notice is: Ounce, 5 cts.; pound, 50 cts.; 5 lbs., $2.25; 10 lbs., $4.00. I suppose almost anybody can grow Hubbard squash seed, but there ought to be some arrangement for disposing of the squash. We have canned pumpkin that will keep any number of years, and a nice article is retailed as low as three cans for 25 cts. Is there any reason why Hubbard squashes can not be canned in the same way? If so, then it is the canning-factory's place to furnish the seed. Of course, the strain would be good and pure, and none but nice squashes should be put into the cans, and the seeds saved only from these nice ones. As Hubbard squashes can be kept clear through the winter, the canning-factory would not need to be a large one, for, in fact, it could can squashes all winter at its leisure. And, by the way, is it not true that good Hubbard squashes always bring good prices, not only in towns and cities, but even in the small villages?

KEEPING FLIES FROM CATTLE AND HORSES; KEROSENE APPLIED WITH THE FAULTLESS SPRAY-PUMPS.

Several weeks ago somebody told us a spray of kerosene applied with these little sprayers would banish flies from horses and cattle instantly. He said the little machine paid for itself alone in keeping the flies away from his cow while he was milking. The letter containing this information seems to have been mislaid; but this is an exceedingly important matter. During fly-time the damage to horses and cattle both goes away up into the dollars, aside from the inconvenience of having the animals twitching and thrashing around instead of attending to the business on hand. Will others who have used these implements for this purpose let us know about it? As I understand it, pure kerosene applied in the form of a fine mist or spray does the work as well as any of the much-advertised liquids made for this special purpose; and will somebody tell us if the same arrangement will answer for expelling vermin from poultry?

HANDBOOKS ON GARDENING.

After visiting Henry A. Dreer's wonderful greenhouse covering an entire square acre, I introduced his little book, "Vegetables Under Glass," and we have had a large sale of it; in fact, it is being called for almost constantly. At the same time I made an editorial mention of two other books by Dreer. One of them, "Open-air Vegetables," is a companion to "Gardening Under Glass." The first book tells us how to start stuff under sashes, and the second tells us how to manage the same stuff after the sashes are taken off, or after the vegetables are moved from the greenhouse into the open air. Both books are exceedingly valuable, and by buying lots of them we are enabled to furnish them at the very low price of 20 cts. each; by mail, 23 cts.

There is another valuable book by Dreer, entitled "Grasses and Clovers, with Notes on Forage Plants," at the same price as the above. And, by the way, all of these books are most fully illustrated. A large part of the pictures are photos of the gardens, beds, sashes, shutters, and cheap greenhouses, as well as the plants. A great many times the pictures alone may be worth the price of the book to the purchaser. In addition to the above three books we have still another, by T. Greiner—"The Young Market-gardener." This book is also fully illustrated, and full of valuable hints. The regular price is 50 cts., postpaid; but we have about a dozen copies left that we will close out for 35 cts., postpaid.

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.]		[Price without postage.
8	Bible, good print, neatly bound	20
10	Bunyan's Pilgrim's Progress**	50
20	Illustrated Pilgrim's Progress**	75

This is a large book of 425 pages, and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25 cents more.

6	First Steps for Little Feet	50

By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound and fully illustrated.

3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*	10
1	Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper	5
2	Same, board covers	20
5	Same, words and music, small type, board cov.	45
10	Same, words and music, board covers	75
3	New Testament in pretty flexible covers	05
5	New Testament, new version, paper covers	10
5	Robinson Crusoe, paper cover	10
4	Stepping Heavenward**	18
15	Story of the Bible**	1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

	"The Life of Trust," by Geo. Muller**	1 25
5	Tobacco Manual**	45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

15	A B C of Bee Culture, cloth	1 10
	Advanced Bee Culture, by W. Z. Hutchinson	50
3	Amateur Bee-keeper, by J. W. Rouse	22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I., §	2 36
21	Same, Vol. II., §	2 79
	Same, Vols. I. and II., postpaid	5 25
10	Bees and Honey, by T. G. Newman	90
10	Cook's New Manual, cloth	1 15
5	Doolittle on Queen-rearing	95
2	Dzierzon Theory	10
3	Foul Brood; Its Natural History and Rational Treatment	22
1	Honey as Food and Medicine	05
15	Langstroth Revised, by Chas. Dadant & Son	1 10
15	Quinby's New Bee-keeping	1 40
	Thirty Years Among the Bees, by H Alley	50
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey-bee, by Thos. William Cowan	95

| British Bee-keeper's Guide-book, by Thomas William Cowan, England § 40
3 | Merrybanks and His Neighbor, by A. I. Root... 15
4 | Winter Problem in Bee-keeping, by Pierce...... 46
| Bienenzucht und Honiggewinnung........ 50

Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.

MISCELLANEOUS HAND BOOKS.

5 | An Egg farm, Stoddard ** 40
5 | A B C of Carp Culture, by Geo. Finley 25
5 | A B C of Strawberry Culture,** by T. B. Terry.. 35

Probably the leading book of the world on strawberries.

3 | A B C of Potato Culture, Terry **........ 35

This is T. B. Terry's first and most masterly work.

| Barn Plans and Out-buildings*........1 50
| Canary birds, paper 50
2 | Celery for Profit, by T. Greiner** 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

15 | Draining for Profit and Health, Warring........1 35
10 | Fuller's Grape Culturist **........1 15
8 | Domestic Economy, by I. H. Mayer, M D.** ... 30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10 | Farming for Boys*........1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-growing** 90
12 | Gardening for Pleasure, Henderson*........1 35
12 | Gardening for Profit**........1 35
8 | Gardening for Young and Old, Harris**........1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants 20

This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse construction, by Prof, Taft**........1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15 | How to Make the Garden Pay**........1 35
5 | Garden and Farm Topics, Henderson**........ 60
| Gray's School and Field Book of Botany........1 80
5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper*........ 20
5 | Gregory on Onions, paper*........ 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen........ 05
10 | Household Conveniences........1 40
2 | How to Propagate and Grow Fruit, Green*...... 15
10 | How to Get Well and Keep Well........ 90

An exposition of the Salisbury system of curing disease by the "lean-meat diet."

2 | Injurious Insects, Cook........ 10
10 | Irrigation for the Farm, Garden, and Orchard* 1 10

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

7 | Market-gardening and Farm Notes........ 75

This is by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drouth threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

3 | Maple Sugar and the Sugar-bush**........ 32
4 | Peabody's Webster's Dictionary........ 10

Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers........ 30
6 | The same in cloth covers. 65
3 | Onions for Profit**........ 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

| Our Farming, by T. B. Terry**........1 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming, before the world at the present day. The price is $2.00 postpaid, but we have made arrangements to furnish it for only $1.50.

We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

1 | Poultry for Pleasure and Profit.**........ 10
8 | Practical Floriculture, Henderson.* 1 10
10 | Profits in Poultry.* 75
2 | Practical Turkey-raising 10

By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character.** 15
1 | Silk and the Silkworm 10
10 | Small-Fruit Culturist, Fuller 1 10
10 | Success in Market-Gardening* 90
10 | Talks on Manures* 1 35
7 | Ten Acres Enough 75
10 | The New Agriculture; or, the Waters Led Captive (a $1.50 book) 40
2 | Treatise on the Horse and his Diseases........ 10
5 | Tile Drainage, by W. I. Chamberlain........ 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, Ohio.

3 | Tomato Culture 35
3 | Vegetables under Glass, by H. A. Dreer**...... 20
3 | Vegetables in the Open Air........ 20

This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle........ 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope**.. 47
8 | What to Do and How to be Happy While doing It, by A. I. Root 42

The A. I. Root Co., Medina, O.

Advertisers' Department of Short Write-ups.

A GOOD POTATO-PLANTER.

The Improved-Robbins Plants 100 Per Cent of the Seed.

The Improved-Robbins potato-planter will open a loose furrow, mix the fertilizer (when used) thoroughly with the soil, drop the seed any desired distance—12, 14, 15½, 17, 18½, or 20 inches apart — cover with discs as much or as little soil as desired. Drops 100 per cent of the seed correctly—making no misses or doubles. The makers of this planter guarantee it to do satisfactory work upon a fair and impartial trial.

Every farmer who is thinking of purchasing a potato-planter should look thoroughly into the merits of this machine. A copy of the handsome "Iron Age" catalog, describing forty great labor-saving farm and garden implements, will be sent free: also a copy of a special catalog describing the planter mentioned above. Bateman Mfg. Co., Box 120, Grenloch, N. J.

The Prairie State Incubator Company.

The Prairie State incubator that is so well known throughout the U. S., is a machine used exclusively on the largest poultry and duck farms in the world. On these farms from 40 to 60 300-egg machines are used to hatch out thousands of chickens and ducks throughout the season. After a careful test on the U. S. Agricultural Experimental Farm, at Washington, the Prairie State incubators and brooders were adopted, and now used exclusively there. In addition to these two recommendations, the machines have been awarded 307 first premiums all over the United States and Canada. Our machines have also been put on exhibition in foreign countries, and have been awarded the highest honors in the way of gold medals, diplomas, etc. Prairie State Incubator Co., Homer City, Pa.

Kerosene Emulsion in Spraying.

The value of kerosene as a material for spraying has been generally appreciated by horticulturists and others for some time, but the difficulty and uncertainty of preparing and using the various emulsions of kerosene has prevented its general use. With an eye singly fixed on its value we set to work experimenting for a machine that would make its own emulsion while in the act of spraying. The result is the "Weed" Knapsack Kerosene-sprayer, the "Success" Bucket Kerosene-sprayer, and the "Peerless" Barrel Kerosene-sprayer. The great success of these machines is due to the fact that the force applied in pumping injects just the amount of kerosene desired into the spray in such a manner as to make a perfect emulsion. The amount of kerosene is easily regulated by an indicator on the top of the kerosene-tank which controls the percentage of oil. Our illustrated catalog and price list containing complete formulas for spraying, in addition to description of their very complete line of pumps and nozzles, sent on application. The Deming Co., Salem, Ohio.

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We often wonder if the general public properly appreciate the privilege of doing business with the pioneers and originators of an industry. Undoubtedly nobody else has so many advantages in the way of knowledge of the business, requirements of the trade, actual needs of the people, best and most economic methods of manufacture, etc., as the active and observing pioneer in any line of manufacture.

We know that this is true at least in the manufacture of green-bone cutters. The Mann green-bone cutter was the original perfected machine of its kind, and remains to-day the leader among such machines. We have the largest factory in the world devoted exclusively to the manufacture of green bone cutters, and are selling more machines than all other manufacturers combined. F. W. Mann Co., Box 37, Milford, Mass.

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KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS AS AN ADVERTISING MEDIUM.

I must say your journal is the thing to advertise in. I had answers without end, consequently I sold the dogs. I shall come again when I have any thing for sale or exchange. ROBT. GOLLING.

Lenoir City, Tenn., Feb. 10.

I still desire to assure you that no periodical is so welcome and appreciated in my house as GLEANINGS. Please continue to send it to me as usual.

J. F. MUNDAY.

Woodville, N. S. Wales, Australia, Nov. 4.

THE INNER LIFE OF PROMINENT BEE KEEPERS.

I should like to have you give us little insights into the private life of such men as Mr. Doolittle and Dr. Miller. I think most of your readers would not object to knowing something of the home life of our great teachers, and hope you will continue to favor us with such pictures and sketches. When we learn to love a man because he is good and useful, we can not find out too much of the good side of his life.

Roxobel, N. C., Dec. 24. GEO. H. BARNES.

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Honey Column.

CITY MARKETS.

CLEVELAND.—We quote our honey market to-day as follows: Fancy white, 13@14; No. 1, 12@13; A No. 1 amber, 10@11; No. 2 amber, 9@10; buckwheat, 8; extracted white, 7; amber, 6; buckwheat, 5.

A. B. WILLIAMS & Co.,
April 7. 80-82 Broadway, Cleveland, Ohio.

DETROIT.—Decreasing demand and the attempt to crowd sales has forced down prices on comb honey. We now quote fancy white, 12; No. 1, 10@11; dark and amber, 8@9. Extracted in fair demand without change in prices. Beeswax, 25@26½.

April 10. M. H. HUNT & SON, Bell Branch, Mich.

SPRINGFIELD.—Market a little slow the past week. Fancy, 14@15; A No. 1, 12@13; No. 1, 10@11; fancy buckwheat, 10; No. 1, 8. Believe market will be slow from now on for some time.

PERKINS & HATCH,
April 8. Springfield, Mass.

ALBANY.—Honey market quiet, with stock about all gone. Could use some of both comb and extracted to sell at—comb, 7@12; extracted, 5½@6½.

MACDOUGAL & Co.,
Successors to Chas. McCulloch & Co.,
April 10. Albany, N. Y.

PHILADELPHIA.—The demand for honey has kept up better than usual this season on account of cool spring, but the supply has been fully equal to the demand. We quote fancy comb 15; No. 1, 13; amber, 9@11; extracted white, 7; amber, 5@6; beeswax, 28. We are producers of honey—do not handle on commission.

WM. A. SELSER,
April 8. 10 Vine St., Philadelphia, Pa.

CHICAGO.—Stocks of white comb honey are about exhausted, and this is as it should be if a market is to be had for the expected large flow of nectar for the season of 1899. Choice grades of white, 12@13; travel-stained and light-amber, 10@11; buckwheat and dark, 7@8; extracted white, 7@8; amber, 6@7; dark amber, 5@6; beeswax, 26. R. A. BURNETT & Co.,
April 8. 163 South Water St., Chicago, Ill.

FOR SALE.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60-lb. cans for $7.20. THE ARKANSAS VALLEY APIARIES,
OLIVER FOSTER, PROP.
Las Animas, Bent Co., Colo.

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WANTED.—Handy man who understands work in apiary and can handle bees for comb and extracted honey. State age, and if have family. No liquor or tobacco. I am an expert, and will do the managing. Address M. P. RHOADS, Las Animas, Col.

WANTED.—To buy a second-hand shingle-mill; also a circular-saw mill. Address
WM. S. AMMON, 216 Court St., Reading, Pa.

WANTED.—To exchange one thousand wide frames with tin separators, for something I can use.
C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—Your address for a free copy of my book on queen-rearing.
HENRY ALLEY, Wenham, Mass.

WANTED.—To furnish my hives and sections, to careful men, for a share of No. 1 clover honey. Also 4 sizes of the prize comb-honey cartons, and 68 pages of "Facts about Bees," for 6 cts. in stamps.
F. DANZENBAKER, Washington, D. C.

WANTED.—To exchange man-trailing bloodhounds, foundation-mill, and bone-mill, for L. hives in flat. ELIAS FOX, Hillsboro, Wis.

WANTED —To buy a carload of bees; 10-frame hives and Hoffman frames preferred.
B. WALKER, Evart, Mich.

WANTED.—25 to 100 colonies of bees on L. frames at $2.00 each. Prefer bees near home. Will exchange a hot-water heating outfit for brooder-house for anything I can use; outfit cost $50; value same at $25; is good as new. H. G. QUIRIN, Parkertown, O.

WANTED.—100 three-frame (Simplicity size) nuclei of sealed brood, with young queen—Italian or Carniolan, May 25. Also 50 young queens. Send price.
W. L. COGGSHALL, West Groton, N. Y.

WANTED.—To exchange for peahen, peafowl eggs, and a few Italian queens for May delivery, eggs from pen of White Plymouth Rocks with average score 94⅜, valued at $1.50 for 15 eggs.
A. W. CARSON, Joplin, Mo.

WANTED.—To exchange a lot of new hives and foundation for honey, beeswax, or cash; will allow 30c for beeswax; market price for honey. Hives and frames nicely nailed up with empty supers, at Root's prices. D. H. TWEEDY, Dillonvale, Ohio.

WANTED.—A situation, or to rent an apiary for the coming season. S. WHITEWELL, Galena, Kan.

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Some one,

we believe, has said that, to subscribe for *all* the bee-papers, would cost $5; and that just *one* paper, costing a dollar a year, would be sufficient provided that paper contained, besides its regular matter, *the cream of all the other bee-papers.* Well, that one paper, of course, is the AMERICAN BEE JOURNAL. Not because we publish it do we say this, but because a good many people believe it comes nearest being the *truth.*

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we never have advised taking only one bee-paper; but we are willing to say that, if you can afford to subscribe for *only one*, it should be the *old* AMERICAN BEE JOURNAL, which is issued *weekly*, and is always crowded with the best bee-information.

We know

its editor *doesn't* know everything; he *hasn't* produced 100,000 tons of honey; he *hasn't* kept bees a whole century; he *isn't* acquainted with all the bee-keepers now living or who ever lived; in fact, he's just a little, plain, hard-working fellow who *tries* to get up a good bee-journal every week in the year, and he *thinks* he succeeds. That's all.

If you want

to see a copy of the AMERICAN BEE JOURNAL, send us your name and address on a postal card; or, if you want a good big "taste" of it send us *10 cents* (in stamps or silver) and we will mail you 13 different numbers that have been issued this year. That means a "trial trip" of *three months for only 10 cents.* How about it? Hadn't you better write us *at once?* We believe you will do so.

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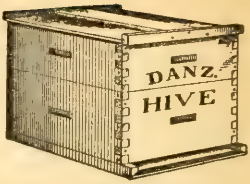

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Apr. 7, '99. **Mrs. Annie Muth, Widow.**

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO

VOL. XXVII. APR. 15, 1899. NO. 8.

STRAY STRAWS FROM DR C. C. MILLER

THE FAULTLESS SPRAYER is just the thing in a window of house-plants — wouldn't do without one for $5.00.

NOW'S A GOOD TIME to remember that there's no better place to keep combs on which bees have died than under strong colonies, putting a whole story of them under.

"IN THIS LOCALITY," as soon as a colony is conscious of its queenlessness all that's necessary is to take two frames of brood with adhering bees, and a sealed queen-cell, and enough bees will stay put for a good nucleus.

"A COLONY can usually be crowded into one story late in the fall or about the time the bees are put in the cellar," says the editor, p. 271. You may make that even stronger, and say always. Even if they should hang out at first, no harm.

IN TRANSFERRING from one movable-frame hive to another, the editor says he would both drive and lift out old frames. Must be some mistake. You'd hardly drive if you could lift out the frames, would you? [You are right. I must have had somehow in my mind the old box hive when I spoke about "driving."—ED.]

I ALWAYS SUPPOSED that I got excellent queens by doing as W. W. Somerford directs, p. 260, but some insist that Mr. Somerford will have to destroy those cells and give other brood to the colony if he wants good queens. Friend Somerford, have you ever reared many queens that way? and if so, will you tell us their character?

IN ANSWER to a question, p. 254, most certainly introducing a young queen in place of an older one, before harvest, lessens the chance of swarming; and, more than that, if the young queen is not introduced *but reared* in the hive, there is no danger of swarming. Why a queen reared in the hive is better to prevent swarming than one of the same age introduced, I don't know.

WHAT DOES H. Segelken mean by tall wide sections, which he speaks of twice, p. 263? He prefers sections with a width of 3⅝ and 4 inches. Does he call them *wide?* [I suspect that, when Mr. Segelken spoke of "tall and wide" he simply meant tall sections, from the fact that he directly favors *all* tall sections, no matter what their width.—ED.]

"FUNCTIONALLY the worker-bee is not capable of reproducing its kind"—hold on, though; what about a laying worker? If he lays eggs, and his eggs produce perfect drones, is he to have no credit for his work? But if you're willing to call it *it*, it will be all right. [But is it not still true that a worker bee can not produce its own kind? However, I am willing to call it *it*.—ED.]

STENOG doesn't know what Mr. Day went west for, when Mr. Secor says:

> May the strength which I gather while Day's in the West.

Day was trying to get away from the two damsels that were after him, Evening and Twilight, for we are told, "Now came still Evening on, and Twilight." [You are right. —ED.]

W. W. SOMERFORD, p. 261, speaks of making nuclei of brood and bees that have been ten days queenless; and unless the bees are fastened in, "nine-tenths of the bees return to the old hive." In this locality not many such queenless bees would return to the old locality, if not fastened in at all. [I suspect you are right, and yet at the same time Doolittle may have a bone to pick with you on the point.—ED.]

A. E. MANUM reports in *A. B. K.* that in 1886 he fed to 727 colonies $2100 worth of sugar. If sugar was 5 cts. a pound, and 5 pounds of sugar made 7 pounds of syrup, that made 80 pounds of syrup per colony. Seems there must be an extra cipher in that $2100, but it's so given in two places. [Something wrong somewhere. Even if we take off a cipher, then each individual colony would have got only a scant feed.—ED.]

WHILE BEES BURIED in the snow may do nicely, as mentioned by I. S. Tilt, p. 274, it should not be forgotten that others, I think

G. M. Doolittle among the number, have reported heavy loss when bees were deeply buried a long time. [But the reports for the past few years seem to indicate that, as a general rule, snow over the entrances does very little harm; in fact, it seems to be an advantage. In Doolittle's locality the snow might be so very deep around the hives as to be too much of a good thing.—Ed.]

DZIERZON thinks the queen does not decide the sex of an egg after she thrusts her abdomen in the cell, as by that time he thinks the egg has passed the point where it is fertilized. He inclines to the belief that the sex is decided at the time the queen puts her head in the cell. [We can speculate a good deal on the precise time when the queen decides to lay a worker or a drone egg; but we shall never be able to prove it, methinks. Even if Dr. Dzierzon were right, I do not see how he could prove the theory.—Ed.]

A NEW KINK that of Chas. Dadant, p. 258, that queens drop eggs as they ripen, and so lay as many in a small hive as a large one. May keep right on for a little while when changed from a full colony to a nucleus, but won't they slack up in a day or so? But I don't see that that makes any difference, and I don't see that that overworking and dying theory counts for any thing. Unless I'm entirely mistaken, the rule is that all queens in strong colonies are superseded, and that supersedure usually takes place toward the close of harvest, when it causes no loss, so it's just as well if a queen doesn't last more than a year.

J. H. MARTIN suggests coffin-handles for hives, p. 256. Don't you know, Bro. Martin, those things are not strong enough for use generally, but only for show? I've taken your advice, refusing "that pugnose affair," and have ordered a hundred hives with substantial cleats clear across. But say, Rambler, what makes you keep harping on handholes that really advanced bee-keepers are finding out are not sufficient? [Handholes are all right; and the handhole in connection with the so-called "pugnose affair" is better than cleats alone. Didn't we so decide, doctor, when we were in your apiary last fall, talking about this same matter?—Ed.]

YOU MISSED the first part of my question about that Michigan law, Mr. Editor, p. 254. On the face of it, the law can easily be interpreted that the governor shall not make any appointment until the bee-keepers recommend him to make an appointment, and then he may appoint a man of his own selection that the bee-keepers don't want. Very likely the intention was that the governor should appoint an inspector, and that the appointee must be a man recommended by the bee-keepers. Why not say so? [While the law might have been worded a little better technically, I hardly think the governor would make a choice that would not be in entire harmony with the wishes of the bee-keepers. If such a law were in force, and the bee-keepers as a body were to make a request for the appointment of a certain person, the governor would be, on political grounds if nothing more, very glad to appoint that very person. If the bill could be changed without interfering with its passage, by all means change it. But if there is the least chance that the effort to change would hinder or block its passage, then I would leave it as it is. As to section 3, part of the inspector's duties are enumerated in section 2.—Ed.]

IF APIS DORSATA is "incapable of being hived," and yet thrives and multiplies to such an extent as to use a large part of the nectar that should go into our hives, can't you "see even then that they can do any harm"? But I've no fear of their living "in this locality." [If *Apis dorsata* were very numerous in their own habitat, there might be grounds to fear that, when they once get into this country, they might run out other bees as the English sparrows have been said to run out some of our song birds. The facts are, that *Apis dorsata* do not interfere with other East India bees in India any more than bumble-bees interfere with *Apis mellifica* in this country. The climate of the United States, even in Florida, would be too severe for the bees at times, if domiciled in the open air. One frost, I imagine, would kill them.—Ed.]

PICKINGS FROM OUR NEIGHBORS' FIELDS.
BY "STENOG."

> "Don't talk to me," says surly Drone,
> "About your 'April showers;'
> This sleet and drip give me the grip,
> And that my temper sours."

* * *

AMERICAN BEE JOURNAL.

I am glad Mr. York reads the *Inland Printer*. No wonder his paper looks well. That's where you'll see my effusions, Bro. York.

* * *

Prof. Cook lays stress on the importance of having empty combs on hand to secure a good crop when it does come. He predicts a big crop in 1900.

* * *

Mr. York discusses the question as to when a discussion should be cut off. When it ceases to discuss would be a good place to draw the line; that is, when no more juice can be squeezed out of the lemon, throw it away.

* * *

As to the number of people making hives, I believe it was five times larger fourteen years ago than now. We used to describe the catalogs of such, and I know the supply was constant. In one issue I wrote up about sixty.

* * *

"Afterthought," in the issue for Mar. 30, is the distinctive feature. In one item the writer is severe regarding a proposed trial of how much a man can eat in a certain time. It is claimed that a certain man can eat a pound and a half of honey in a minute and a half. Isn't that a perversion of one's powers?

Prof. Cook paints a sorry picture of the California prospects for 1899 ; but the late rainfall has spoiled his article, much to his delight, probably. A slight change of Cowper fits the case :

> Ye fearful saints, fresh courage take ;
>   The sky that long was red
> Is dark with rain clouds that now burst
>   In fatness overhead.

* * *

The Illinois foul-brood bill will probably become a law, as it was reported to the Senate with the recommendation that it pass. It seems strange that so reasonable a measure as that and others do not emanate from our lawmakers themselves. Why should they be urged in such a matter, while others of a doubtful and even evil character are sometimes granted at once?

* * *

T. F. BINGHAM, of smoker fame, is an advocate of wide and deep entrances, summer and winter. He writes that his bees have wintered nicely, notwithstanding his entrances are 12×⅞ high the year round. Wide entrances are rapidly working their way into favor, because it becomes evident that many of the veterans have been using such entrances for years — long before we began to advocate them.

* * *

"Alright" is referred to as being possibly a new word. That's alwrong. Poor spellers often use it, supposing it follows the analogy of *already*. It is an eyesore to have such things thrust before us. But it is no worse than *sometime* as a word ; as, "He was here *sometime* ago." *Sometimes* (an adverb) is always one word ; but *some time* is an adjective and a noun. *Sometime* is obsolete. It used to mean *former* or *formerly ;* as, "Monroe was *sometime* (once) president of this country." Also *someone*, *noone*, and *anyone*, in place of *somebody*, *nobody*, and *anybody*, are gross blunders. If used they should be separate words.

* * *

Mr. Secor says there is $275 in sight for the Langstroth fund. That's a small sum indeed for that purpose. If the papers of Dayton could be informed of the great benefit conferred on the world by Mr. Langstroth, I believe they would gladly help swell the present sum to ten times what it now is. Mr. Secor is the man to broach the subject. People build finer monuments in honor of the dead a century after the death occurs than the cotemporary generation would erect. Boston has a superb monument, I am told, in memory of Wm. Lloyd Garrison, but he was mobbed there in 1835, as a kind o' starter, I suppose. It takes time to measure a man.

> Ten cities strove for Homer dead,
> Through which the living Homer begged his bread.

THE BUSY BEE.

Concerning wintering, Mr. Abbott says he had another chance to test his pet theory, "plenty of food in the right place," this winter. He started a colony into the winter with no honey, but with a large sugar cake directly over the cluster, and when they last reported a few days ago, they were in fine condition. He lost only one colony, and they starved from pure neglect. His bees are on the summer stand, with no protection, and he is now thoroughly convinced that a cluster of bees with full honey-sacs will not freeze.

* * *

In regard to amalgamation, the editor says that General Manager Newman, of the National, in a letter to General Manager Secor, of the U. S. Association, makes such demands as a condition of the union as are never likely to be assented to by the General Manager and directors of the United States Bee-keepers' Association, and there the matter rests. Mr. Abbott says that, as a director of the last-named society, the union will never take place by his consent on the conditions set forth by General Manager Newman.

AMERICAN BEE-KEEPER.

Henry Alley seems to be down on new things, and on some things that are not so new. He says, "Down with a hive, a smoker, a section-case, and all other clap-trap fixtures. Give me things most convenient and inexpensive. Scientific bee-keeping in any branch of apiculture is a nuisance." Bro. Alley seems to want "liberty or death," but prefers the former.

* * *

Mr. Doolittle says a wooden paddle about 5×7 inches is the thing to kill cross bees that follow one around the yard. He once tried a paddle made of fine wire cloth stretched over a wooden frame, something like a sieve. But he says he can hit a bee just as well with the solid paddle as with one that allows the air to pass through. The latter sometimes only stuns the bee, while the solid one always kills it.

* * *

A correspondent asks Mr. Hill how a glass hive would work. The reply is, "Glass, being a conductor of heat and a non-absorbent of moisture, it would seem it is not so well adapted to the requirements of bees in winter as would be a hive of wood, the character of which is, in these important respects, directly opposite. We have, however, for a number of years, successfully wintered a colony of bees in a glass hive, in a warm room."

* * *

An interesting letter from Chili, by the editor of the *Chilian Bee Journal*, is given, together with a picture of the writer, Mr. Lafitte himself, and two Chilian apiaries. His journal comes here, and I have noticed with much pleasure the excellent and progressive qualities of it in every respect. He says the general aspect and climate of Chili are especially adapted to bee-keeping. Some of the farms cover 40,000 and some 80,000 acres, and some are thirty or forty times as large as that. There is an enormous consumption of wax there for tapers in the Roman churches. One of the largest apiaries consists of 700 frame hives, 400 of which are of the Dadant-Blatt system, and about 300 of the Langstroth-Simplicity style. These 700 hives are divided into five apiaries about two miles apart. So far as harvests are concerned, 110 lbs. per hive is the most that has been extracted. This was an apiary of 100 Dadant-Quinby hives. Deep frames are inconvenient in a climate like that of Chili.

L'APICULTEUR.

In our highly esteemed French cotemporary, *L'Apiculteur*, Mr. C. M. Weber comes out vigorously against the practice of clipping the wings of queens as taught by E. R. Root. He says, "This mutilation is contrary to nature. . . . Let the Yankees find their profit in these stubby clipped wings; but as for me, I prefer to let my queens remain winged, just as God created them in order that they might be fertilized." But after they are fertilized, what need have they of wings? If they serve man's purpose better when clipped, is it not his right to clip them? Mr. Weber's logic would keep him from clipping lambs' tails; but the lamb is happier without the tail, even if God did give him one to start life with. Again, if Mr. Weber is right it would be wrong to dehorn cattle; but if cattle are more useful to man when they are dehorned, surely it can be no more displeasing to God than it would be to cut down a hill to make a railroad, or to cut our hair and finger-nails to improve our appearance and enhance our comfort. If clipping is condemned it must be done on other grounds; and in practice Mr. Weber's "other grounds" for not clipping are found to be of no weight.

GENERAL CORRESPONDENCE

CUBA.

Not a Land Flowing with Milk and Honey; Some of the Drawbacks; Fleas; Price of Honey; Cost of Living, etc.

BY AN AMERICAN TRAMP.

Gentlemen:—In your letter of the 7th you ask me to send you a few lines about bee-keeping in Cuba as I find it. This I will do, hoping it may be the means of saving some money to my brother bee-keepers who come here, and more to those who stay away. I have just returned from a short trip through the country, and there is no doubt about Cuba being a fair "honey country." Extra large yields like some they have in California and some we had in Florida are not known here. The honey crop here will generally pay a bee-keeper fair wages; but I find in collecting data that some years are bad here too, so that, in an apiary of 375 hives in the hands of an expert bee-keeper, the crop did not pay him $300 for his year's work. I have seen but one location so far where I should care to risk over 300 hives in one place. Along the good roads here one can find an apiary every few miles, and more springing up every day. This, in connection with the farming population going back to work cultivating the fields, thus destroying the aguinaldo, which is the main stay of the honey crop, is going to reduce materially the honey-yield yearly.

The surplus honey-flow is from November till the first of March—some years longer and some years shorter. Most of the honey here is sold in Havana and shipped to Europe in barrels of 90 gallons. The cost of hauling these barrels on the best of roads a distance of eight miles is $2 00 each. One apiary on a railroad pays $2.35 per barrel a distance of about forty miles, and pays 80 cents freight for empty barrels the same distance. On this railroad they charge 13 cents per mile on a third-class passenger ticket. What a first-class ticket was I was afraid to ask. It costs a good deal to get around in Cuba.

The price of honey this year here is higher than it generally is. The present price is 48 cents per gallon. This is because so many apiaries were destroyed during the war. Some years the price has been as low as 24 cents per gallon. In one apiary I visited, the ground between the hives was just carpeted with dead bees, so thick you could not see the ground. The owner did not know what caused it. It was not from robbing or fighting, as it was all over the apiary. Can it be from some poisonous bloom? Can any reader tell? I looked into the hives, but found the bees in the hives in good condition. From what I have been informed by several bee-keepers there is considerable foul brood on the island; but from what I have seen, bees seem to thrive in almost any condition here.

You will probably get plenty of matter on the bright side of bee-keeping, so I will give the offset to it. A single man coming here to work in an apiary need not look for big wages. The wages paid bee-keepers is from $15 to $25 per month, and board. A man with a family intending to come to live here had better come alone first and see for himself. In the country there are no houses, almost all having been burned by the insurgents, and very few women from their homes in the United States would content themselves to live in these Cuban towns or cities, they being very filthy and dirty; besides, the houses are just alive with fleas. I have had to wash myself with kerosene oil on going to bed, so as to get some rest; otherwise the island is quite free from insects, the fleas being the worst.

The cost of living is also very high, but it is becoming cheaper daily. Flour is $8.00 per barrel; beef, 30 cents per pound, and all other things in proportion. But kerosene oil caps the climax, selling at retail all the way from 50 cents to $1.00 per gallon, and this in a country where you have to burn alcohol, oil, or charcoal (there being no wood), is quite an item. Why! sixty cents' worth of postage-stamps would cost a dollar here. The only things I have come across here that are cheap are cigars and alcoholic beverages. Just think of it, friend A. I. R.—good cigars two and three cents each, and cognac and gin two and three cents a glass. You don't know how much I regret that I have no use for either. I have half a notion to learn to use both so as to take advantage of the only cheap thing in the country.

The last day of my trip I came across a man who has two gums of the stingless bees; but I had no time to investigate them. I promised him that, when I got time, I would go and transfer them into a frame hive. He said if I did he would give me one of the gums of bees, so I shall get a chance to see what they will do.

This is all for the present, from the Cuban-American TRAMP.

[I have concluded not to go to Cuba just yet. If I must bathe myself in coal oil at $1.00 per gallon to keep off fleas I'll stay at home a while longer. Seriously, one should think twice before going to this land devastated by the hand of war. Conditions will improve, no doubt, in the near future. In the mean time the average bee-keeper better keep his good dollars and invest them at home.—ED.]

SHALL WE EXTRACT BY HEAT OR MACHINERY?

A Hard Hit at Orthodoxy in Bee-keeping; a few Facts and Figures on the Question Whether it is More Profitable to Run for Wax and Honey than for Honey Alone.

BY W. A. H. GILSTRAP.

It is an almost painful fact that few things get so well settled that they remain so; and one man can knock figures down faster than fifty more able-bodied men can set them up. Below I propose to indulge in a little innocent calculating, which can easily be disproven by any one having a small experience or much theory. As this article is only suggestive it would be more profitable to hear from the former class.

Mr. Ridgepole man was condemned because he proposed at the Albany convention to run bees to wax more and honey less. That very thing has been done successfully for years by the Wolfe family, or families, rather, in San Joaquin Co., Cal. Mr. Milo Wolfe says he can support his family from 200 colonies of bees without selling a pound of honey. Of course, he would have to "feed back" to get the largest amount of wax. One year his father, Mr. Jacob Wolfe, obtained over a ton of wax from one apiary.

Perhaps you think they use a great deal of foundation. They have the bees start comb from V-top bars without a starter for either story. They have as good bees as you are likely to see in this country; have tried extractors, and now prefer melting their honey in solar extractors. Much of their honey is quite dark, but the wax is all right. Let's suppose the case. Suppose I extract the honey from 400 colonies in the "orthodox" way.

400 colonies at 100 lbs. honey each, 40,000 lbs., at 2½c		$1000 00
Wax at 1 per cent weight compared with the honey, 400 lbs., at 23c		92 00
Total,		$1092 00
Cans and cases	$200 00	
Sacks for wax, probably	10	
Net,		$ 891 90

Or suppose I melt the honey in solar extractors.

400 colonies at 50 lbs. honey each, 20,000 lbs., at 2½c		$500 00
Wax at 5 per cent weight compared with the honey, 1000 lbs. at 23c		230 00
Total,		$730 00
Cans and cases	$100 00	
Sacks for wax, probably	25	
Net,		$629 75
In favor of machine extracting		262 15

This, however, is not the real difference. Other factors must be considered. Melting takes less time, a cheaper hive, and less hauling, which is quite an item in some places. It also means more swarms if the extractor man lives up to his privilege. If the flow is very long I know it is an advantage to extract once, sometimes twice, from the brood-chamber early in the flow. If the honey comes in very late in the season, cool weather is sure to interfere with comb-building, somewhat to the detriment of the melting plan. On some ranges the amount of honey obtained by melting is not far below the output from extracting, which would give altogether a different result from that figured above.

In Jan. 15th issue, 1898, page 50, Mr. J. H. Martin says the San Francisco papers quoted the dark river honey of which I speak at 1¾ cents per pound. Of course, that is the lowest price on record; but as we are likely to have more of that price in the future, let us figure on that price from the above basis.

Extracting:

400 colonies at 100 lbs. honey each, 40,000 lbs., at 1¾c	$700 00
400 lbs. wax at 23	92 00
Total,	$792 00
Packages for honey and wax	200 10
Net,	$591 90

Melting:

400 colonies at 50 lbs. honey each (75 lbs. might be nearer correct), at 1¾c	$350 00
1000 lbs. wax at 23c	230 00
Total,	$580 00
Packages for honey and wax	100 25
Net,	$479 75
Apparent difference in favor of extracting	112 15

As the cost of labor, marketing, comb-building, cost of packages, etc., are not identical in any two places where the bees and hives and other implements vary, each apiarist will have to consider his surroundings, and perhaps find the relative advantages of the two methods by experience.

Crows Landing, Cal., Nov. 30, 1898.

[When Mr. Aikin's article was read at the Buffalo convention I remember it raised a regular hubbub of protests. Such a doctrine as discarding the extractor, and cutting out the combs and putting them in wax-extractors, was too much for the bee-keepers present to indorse. Notwithstanding I would not go so far as to say there may not be something in it, for, as friend G. shows, a good deal depends upon conditions and circumstances. If honey should continue to go down, and wax go up, it might be well to pay more attention to the latter. In Cuba, I believe, wax is one of the important products from the hive.—ED.]

* * *

SOME NOTES ON MARCH FIRST GLEANINGS.

A Valuable Article from an Old Correspondent.

BY J. A. GREEN.

THE AVERSION OF BEES TO BLACK CLOTHING.

It is somewhat surprising to me to note the number of bee-keeepers who do not believe that bees have any dislike to black clothing. My own experience has thoroughly convinced me that they have. I have many times noticed the fierce attack upon a black felt hat. In one of the most marked instances I ever noticed, the hat was a new one. It was not dirty, nor were there any fuzzy protuberances. Some would say that, in this case, the smell of the dye was obnoxious to the bees. Be that as it may, I have known hats, so old that any smell of the dye must have disappeared, to be attacked when hats equally old and dirty, but lighter in color, were let alone. Bees are certainly much more disposed to attack an object that is woolly or fuzzy than one that is smooth ; but if the material is black, that propensity is increased. Black clothing that is neither new nor dirty nor fuzzy is still objectionable to bees, as I have found to my sorrow.

Much of the time during summer I wear bicycle clothing — knickerbockers and long stockings. One would naturally suppose this to be an ideal dress for the bee-keeper, because there would never be any danger of bees crawling up inside of one's trousers. But I soon found that, if I wore dark-colored stockings, even if they were of perfectly smooth material, and it seemed to make no difference whether they were of wool or cotton ; and, even though they were fresh from the laundry, the bees made my legs a special object of attack. Now when I go into the apiary in this rig I take good care to put on overalls.

TRAVEL-STAIN.

The subject is an interesting one to me, and I regret that the discussion comes at a time of the year when it would be impossible for me to make any experiments or even to secure a sample of travel-stained honey unless I may be able to find one in the groceries. That travel-stain may be sometimes, at least, caused by the incorporation of darker substances into the wax of the cappings, I can testify from my own experience. I once placed over a super in which the bees were at work in the sections a set of old combs that were in such bad condition that the bees gnawed them considerably in repairing and rebuilding them. The fragments of old dark wax sifted down into the super below, where many of them were picked up and incorporated into the capping of the sections that were being finished.

At another time I observed bees mixing with the cappings of the sections fragments of dark-colored wax brought up from the brood-chamber below. But in these cases, as in some others I have noticed, the character and extent of the additions were quite visible and unmistakable, and the result had very little resemblance to ordinary travel stain.

The additions of propolis which are often made in the fall, or during idle periods in the summer, are likewise quite different from what is ordinarily known as travel stain.

Mr. Crane is unwilling to admit that bees are so untidy in their habits as to soil honey by walking over it. Unpleasant as the idea may be, it would be quite as bad to be obliged to believe that the dark color of the cappings was caused by the incorporation into them of the sweepings and scrapings of the hive. It would be strange indeed if the continual passing and repassing of thousands of bees, dusted with pollen and working with honey, beeswax, and propolis, should not leave their marks. Turn a lot of bees loose in a room where they will gather on a window in the endeavor to get out, and how long will it be before the glass will have lost its crystal clearness? For a more marked illustration, notice the entrance of a hive that has been robbed, or any place where bees stealing honey have crowded through a comparatively small opening, and see how soon the edges become coated with a sticky dirt. This is an extreme case of travel stain, but I believe it is in very much the same way that nearly all travel-stain is produced. Doubtless in most cases the coloring-material is pollen, and I should suppose that, in nearly all cases, it would be so incorporated with the rough surface of the capping that it would be impossible to wash it off.

OLD FOUNDATION.

I have often wondered how it could be that some of our writers have so persistently claimed that old foundation is just as readily accepted by the bees as fresh. I satisfied myself by thorough tests several years ago, and I have had the decision confirmed nearly every year since then, that bees show a decided preference for fresh foundation over what has been hung up in the air so long that it has become dry and hard. Try the experiment yourself. Devote at least half a dozen supers to it, placing them on as many different colonies. Fill each super half full of sections filled with foundation fresh from the box in which it came, or, better still, fresh from the mill. In the other half use sections filled with foundation the season before. Place these supers on the hive at a time when the flow of honey is only moderate. Watch them closely as the bees begin work on them. If they do not show a decided preference for the fresh foundation, your experience will be entirely different from mine. I have never known it to fail, though when honey is coming in very freely, so that the bees go to work in the supers in a rush, the difference is not so noticeable.

Unless the foundation has been varnished with propolis, which sometimes ruins it entirely, the bees will always use it if honey is coming in freely; but during a moderate flow they sometimes show a very marked reluctance to using it

With a short honey-flow a little delay in getting started may mean a great difference in results; so I consider it very doubtful economy to use foundation that has been long exposed to the air.

DEEP CELLS.

Having combs built so thick that the queen will not lay in them, as referred to on pages 132 and 165, looks plausible; but my experience has shown that, while it is somewhat of a deterrent, it can not be relied on as a complete preventive. In my extracting-supers I use seven combs in the space occupied by eight brood-combs. Most of these combs were made by transferring, so that it often happens that a part of the cells in a comb are fully ⅞ of an inch deep. At any time when the bees are desirous of extending the brood-nest they will use such combs without any hesitation, cutting down the thick combs to a proper depth of cell. In fact, it has sometimes seemed to me that the bees preferred to use these extracting-combs for brood rather than the regular brood-combs. When a queen is allowed free range through several sets of combs tiered above one another she is apt to desert the lower range of combs entirely, and lay in the second and third story, even when the combs in these upper stories require considerable alteration to fit them for brood-rearing.

SOAKING COMBS

in a solution of carbolic acid in order to disinfect them after foul brood, was once tried by me with a considerable number of combs. I decided that it was both risky and unprofitable. It is a very difficult matter to get all the cells of a comb filled with water. If a single infected cell resists the entrance of the water, your work is all for nothing. After soaking them in the carbolic-acid solution they must be soaked in plenty of clear water to remove the smell. They must then be dried. After all this soaking and rinsing, the bees did not seem to like to use them, so I concluded that the best way to disinfect such combs was to melt them into wax.

SELLING HONEY BY THE SECTION

instead of by weight has been my usual method for several years. Most of the grocers accept this method very cheerfully, and, after experience with the plan, prefer it. Those who do not, generally like to buy by weight and sell by piece, because they are thereby enabled to squeeze out an extra profit. I use sections seven to the foot, with separators, of course, and they run very uniform in weight.

Ottawa, Ill., Mar. 23.

THE DOOLITTLE METHOD.

Some Good Hints; the Superiority of the Doolittle-reared Queens.

BY J. J. COSBY.

After reading Mr. Doolittle's "Method of Queen-rearing in a Nutshell," as given in the Jan. 15th issue of GLEANINGS, I thought that perhaps some testimonials from one of his followers might prove to be beneficial to some of the many beginners.

I purchased his book about seven years ago, and have been very successful in rearing queens of the highest quality. Since, Mr. Doolittle says, on page 47, "Then there is a bare possibility that the deeper Gallup frame has something to do with it, but I think not."

Well, I wish to clear of doubt the mind of the reader by saying his "think not" is correct. I use the Hoffman frame, with good results. I prepare my hive as he directs in GLEANINGS, except that I use one of my very best queens, especially as to markings of progeny, honey-gathering, prolificness, gentleness, etc. In short, this queen must be second to none in the yard, so far as I can judge.

I want this queen to be the mother of my drones; and while I am feeding to secure good queens I am also feeding the same colony to secure an abundance of the very best and finest drones. Oh such beauties!

Why do we bee-keepers admire the beauties of the queen so much, and neglect the drone? But to return to the subject.

About April 5th to the 10th I put one or two combs of honey into this hive that was drone comb (after uncapping the cells), and about May 1st to 10th I put in one comb of sealed brood from hybrid colonies every two or three days until all ten-frames are full of brood (at this time the drone comb should be pretty well filled with drone brood, larvæ, and eggs).

Now, do not think that, because you have brood in all the frames, you are ready for the upper story. You should wait until enough bees hatch out to fill the brood-chamber crammed full; then you are ready to raise the two frames of larvæ and eggs, and put in their place two frames of sealed brood from your hybrids, and proceed as Mr. Doolittle has instructed, and I do not see how you can fail. It is not absolutely necessary to use hybrids to do the cell-building; you only get a greater per cent of the cell-cups accepted and completed by so doing.

Why are these queens better than queens reared from natural swarming? Because good queens are, as a rule, raised only in an abundance of bee-heat; and queens raised in this hotbed, as it were, of bee-heat, and kept there until just ready to hatch out, are bound to be nearer Nature's way of rearing them than any other plan we know of.

"But," says one, "it will not pay me to raise queens."

Well, neither am I a queen-breeder. I have never advertised queens for sale. It pays me to raise my queens for the honey I get. How do I know this? By comparing my honey-records. My honey crop eight or ten years ago averaged from 25 to 50 lbs. per colony (and sometimes less). We will now take the record of the last three years; and to prove to you that last year was a poor year (allow me to digress a little), it was so poor that my neighbor, who had 23 colonies, got only 56 sections of honey, and another with 60 colonies got none whatever. Our bees worked on the same pasture, yet I secured an average of 72½ lbs. from 80 colonies, spring count, and increased to 100 colonies.

The year 1897 was a poor one. My average was 52 lbs. from 100 colonies, no increase. The year 1896 was good, my average being 122 lbs., all comb honey, from 54 colonies, spring count, and increased to 103.

My average, previous to 1896, was never over 50 lbs. per colony, and I do not know any cause for my increase of average except that of my queens being so much better. To get good average crops you must have all good queens. The queens are the propelling power of the apiary.

Evansville, Ind., Jan. 27.

* * *

GETAZ' METHOD OF PREVENTING INCREASE.

Dr. Miller's and the Editor's Objections Answered.

BY ADRIAN GETAZ.

Dear Friend Dr. Miller:—You and Ernest are giving it to me about that method of preventing increase, page 90. See Stray Straws, Feb. 15. The fact is, both you and Ernest strayed off the track, and failed to grasp all the circumstances of the case.

In the first place, note that the old queen is to be removed at once (I use queen-traps on all my hives, as I can not be always at the apiaries). This secures two points. One is, that there will be no more swarming until a young queen hatches, and during that time honey-gathering will go on as well as if there had been no swarming. The second is, that there is no more egg-laying until a new queen is ready to lay. We shall see presently what is the advantage of having no eggs laid.

About a week later one of the virgin queens emerges. Her first move is to try to destroy the other cells. Instinctively the bees defend the cells against her attack. The quarrel goes on for a day or two, when the bees (whether workers or queen or both I do not know) decide that such a state of affairs is getting to be a nuisance, and here goes the swarm. The queen-excluder, or a trap arranged as I described, prevents the queen from going out; and the result is, that the swarm returns at once. The next day brings a repetition of the program, but the swarm will remain out longer. This state of things will go on, the swarming bees remaining out each day for a longer time than the preceding, if the weather is good. What happens in the hive during that time? While the swarm is out, some of the young queens which so far have been retained in their cells by the bees will emerge, as there are not enough bees left in the hive to prevent them. The first thing they will do will be to engage in a fight that leaves only one alive. This, in turn, succeeds, during the absence of the swarm, in destroying the remaining cells, so in four or five days after the first virgin queen swarmed there will be only one queen left, no queen-cell, and, more than that, no unsealed brood to build any; and right there and then the colony goes to work in earnest, gathering surplus as actively as if no swarming had ever taken place; at least that has invariably been my experience, so there is a loss of only about four or five days, so far as gathering surplus is concerned.

You can now see where the importance is of removing the old queen at once; and that is the very point which you and Ernest have overlooked—or, rather, that I failed to explain sufficiently. If the old queen had remained, there would have been a daily swarming during a whole week before the emerging of the first virgin queen. Worse than that, eggs would have been laid during all that time, and perhaps during one or two weeks more; and as long as eggs would have been laid, queen-cells would have been built; and as long as queen cells and emerging queens had confronted each other, swarming would have grown from bad to worse, until, as Ernest puts it, the colony might just as well have been brimstoned so far as surplus is concerned.

The few days during which the colony is without eggs and unsealed brood is what cures the "swarming-fever," if there is any such thing, which I don't believe; but at any rate, after these few days there will be no attempt made at building queen-cells, even if a laying queen was introduced and had begun to lay at once. It seems that, during that time, the bees give up their notion of building queen-cells, and turn their attention to the next best thing, which, in such a case, is gathering honey. How many days, or, rather, how few days, without eggs and unsealed brood, it will take to cure the swarming-fever, I don't know. In a few cases, where I introduced laying queens, there were only four days, and that was sufficient. Whether four days would always be enough, or whether three days would do as well or not, I don't know.

It doesn't matter whether there is a virgin queen present or not. It is the absence of unsealed brood and eggs that effects the cure; and I suppose that a caged queen would not be an objection either, though I never tried it. It is hardly necessary to say that a loose queen and a caged queen together would not do.

Knoxville, Tenn., Feb. 21.

[Dr. Miller replies:]

In what I said about the matter, page 122, I had in mind only the trouble with swarms after the old queen was out of the way. It is only fair to Mr. Getaz, however, to say that the old queen was left without any attention I think it was not a usual thing that the old queen was allowed to live till the first young queen emerged, and I doubt whether any trouble came from her laying. It is possible, however, that I may be mistaken on this last point. My impression is that the swarming after the first young queen emerged was kept up till the last young queen emerged; and when there was no longer a young queen in a cell it was a matter of not many hours to settle who should be rightful heir to the throne I don't believe I have just the same view as the editor about losing a crop by their sulking. As I said before, I could stand the sulking if that was all, and I think I *would* stand it. The trouble was, when a lot of swarms came out and kept getting more desperate every day there was a big demoralization, some colonies being so badly depleted that they were of little use for storing, while others were too crowded for the best work. Worse than that was the fact that sometimes a young queen got out through the excluder, and then away went one of those mammoth swarms. These troubles did not come because of the presence of old queens but of young ones. I haven't said the result would be the same with Mr. Getaz; and if he never has a swarm go off with a young queen, and if he never has swarms return to the wrong hives, then I congratulate him on practicing what I believe to be an excellent plan. If I had an apiary of 25 or less, and had excluders that would not fail in the hour of need, I'd very much like to try the plan again. Indeed, I believe if I had excluders that wouldn't fail me I'd like to try it anyhow. My plan was to put on excluders *before* there was any swarming, then let the bees do the rest, up to the time of letting out the young queen to mate. That suited me better than to wait for swarming and then remove the queen. C. C. MILLER.

Marengo, Ill.

[As Mr. Getaz now explains the method in detail it does not seem to be so objectionable as it did at first. In fact, I feel strongly inclined to give it a trial this coming season. If I understand the method it is simply this: At the approach of the honey season, or perhaps, rather, about the time swarming would naturally commence, the laying queens are removed. Alley drone-traps are then placed over the entrances of the hives thus unqueened. While cell building is going on, and the hives are queenless, there will be no attempt at swarming until some queen emerges from one of the cells; and even then probably swarming would not take place until the queen was strong enough to fly. As the virgins can not get out through the perforated zinc, it is a battle royal, resulting in the survival of the fittest. Four or five days are lost, probably, in the height of the honey season; and if the season is very short, as it is in many localities (only about ten days), the plan would be very objectionable; but if it lasts a month, four or five days would not cut much of a figure.

Although friend Getaz does not say so, it is assumed, of course, that, when the young queens reach the right age, and the swarming-season, or swarming-fever, is over, the drone-traps are to be removed to allow the queens to become fertilized.

There is this to be said in favor of the plan: It involves only the labor of catching the queen and putting on the drone trap. After that, the method works automatically almost through the season; but my oh my! there must be days when the air will be thick with swarms that have come out only to return. At our out-yard I feel morally certain there would be half a dozen farmers who would rush up here every few hours to inform us of the advent of swarms. Indeed, they would be so kind as to try to hive them.—ED.]

BEES AND COLORS.

Valuable Evidence Going to Show that Bees have a Decided Dislike for Black.

BY ELIAS FOX.

Friend Root:—I have carefully noticed the debate relative to bees being distinguishers of color. I should have written sooner, but have been sick all winter, and should have written years ago, but had no idea there was any difference of opinion on that subject. I have often wondered why there was not white material on the market for making bee-veils.

A number of years ago, when I kept my bees in the village, there was a passing team attacked by them—one a white and the other a dark bay with black mane and tail. He was killed by the enraged bees, which literally covered him and filled his nostrils, while the white one escaped with only a few stings.

I have noticed, too, when chickens were around the fronts of the hives, if there was a black or dark-colored one it would be attacked, when the light-colored ones would not be disturbed. As a rule I wear overalls or light-colored pants in the apiary, and it is a very rare thing to see a bee attack them; but let me open a hive when I have black pants on, and there will be from one to a dozen stings in them, almost before you can think. My wife often accompanies me to the apiary; and if there is a black ribbon or feather (smooth or otherwise) they will never fail to find it. I have always noticed, too, that, if I have no veil on, their attacks are either at the mustache, eyes, eyebrows, or right under the hat-rim; and if I get any stings about the hands, nine times out of ten it will be near or under the shady edge of the sleeve. I have many times had them so angry they would even fight the smoker, and the attack is always at the nozzle. I have even seen them strike dark spots and knots on boards; and many times, when empty hives are sitting near, I have seen them strike and restrike the auger-holes in front of the hives. Let two men go into an apiary, one wearing a black hat and the other a white one, and see if the black is not attacked first. If you have an idea there might be a difference in the scent of the two, let them change hats and see if they don't still find the black one. I have kept bees for 17 years, and this has been my experience.

Hillsboro, Wis., Mar. 6.

[In view of the former evidence to the same effect, I do not believe that I was at all hasty in concluding that bees do dislike black objects. Mr. Martin (Rambler), in taking the opposite view, cites the fact that bees are more inclined to sting the white leg than the black pants. But this is not a matter of color. The leg itself has an odor that gives the bees a distinct knowledge of that part which is animate and that which is inanimate.—ED.]

TEMPERATURE OF BOILING HONEY.

225 and 235 F., according to the Specific Gravity of the Honey; the Difference between Spores and the Bacilli Themselves very Clearly Set Forth.

BY HARRY S. HOWE.

I have read with great interest the articles on foul brood which have appeared in the bee-journals this winter. I am putting in a year's work here at Cornell University in the attempt to work out some of those very problems

When I read those notes on the temperature of boiling honey, the first thing I did was to hunt up some samples to represent the extremes of ripeness and body, and carry them up to the bacteriological laboratory. The samples were first placed in large test-tubes, and heated in a water-bath until the water boiled, which was at a temperature of 210¼° F.—about what was to be expected at this altitude. Even after considerable time the honey would not go above 209°. The tubes were then taken out of the water, and heated over a gas flame until the honey boiled vigorously, when the temperature of the best sample was 235°, and the thin one 225°. The thermometers used were standard ones, made and tested expressly for bacteriological work. Care was taken to see that the bulbs did not touch the sides of the test-tubes, and that the temperature reached nearly that of the boiling honey itself.

The experiments were repeated several times to make sure that no mistake had occurred. Each time samples from the same lot of honey reached the same point. A slight addition of water reduced this several degrees, showing that the boiling-point depended upon the specific gravity of the honey.

Prof. Hodge speaks of the three boilings, which are part of the routine work of a bacteriological laboratory in sterilizing culture media, and on that account advised the three boilings for honey. There is, however, a very important reason why this will not apply to foul-broody honey. The reason, as he states it, for the three boilings of culture media, is to kill the germs in the vegetative stage, having just time enough between the treatments for the spores to develop, but not long enough for them to form spores again. This is all right in a medium in which the spores will develop; but the spores of *Bacillus alvei* do not develop in honey, nor can the bacillus live in honey except in the spore stage. We might boil the honey as many times as we wish, and not kill the spores, if each boiling were just too short to kill them.

As to the time to do this, I am not yet sure. I have been working for some time on this point, without coming to any conclusion as to

CALIFORNIA LILAC.

the least possible time necessary to kill the spores. There seems to be a difference, depending on the age of the culture used, media employed, etc. Most text books on bacteriology advise boiling half an hour. At the boiling-point of honey it would take a shorter time. My experiments seem to show that 15 minutes is a safe time.

Dr. Miller speaks of gelatine being about the same specific gravity as honey, which would give about the same boiling-point. Gelatine, however, is used only for work at temperatures below body heat. It is not even used in the incubator. The thermal death-point of bacteria is usually worked out on bouillon.

As to microscopic determination of *Bacillus alvei*, it takes a long training in the study of the closely allied forms before one can make such a diagnosis. The only point of difference between this and several others is the size of the spores. Accurate work with a microscope that will admit of their being measured at all is one of the most delicate operations of microscopic work ; while staining the spores is, to say the least, not the easiest thing in bacteriology.

It is quite easy to determine *Bacillus alvei* by cultural methods. One can not work satisfactorily without quite an expensive outfit besides the microscope. The microscopes in use in this laboratory are fitted with a $\frac{1}{8}$ dry and a $\frac{1}{12}$ oil immersion lens. We are required to use the $\frac{1}{12}$ in making measurements, and in determining the morphological characters of the bacteria.

If one suspects foul brood, the best thing is to send a sample, securely sealed, to some one who has all the facilities for studying it. I am willing to undertake this work free of charge as long as I am where I can, for the sake of the practice.

Ithaca, N. Y.

[The experiment recorded above shows that the temperature I obtained, as mentioned on page 233, was very nearly right, for I secured a figure of 232, with honey about the same as the best sample Mr. Howe speaks of. Right in this connection it might be interesting to place here an extract from an article written by Prof. Henry W. Brice, a skilled microscopist, in the *British Bee Journal* for March 23. He says :

> If a substance containing bacteria be boiled, all developed germs are destroyed ; and if then left for twenty-four hours, and a suitable medium be present, the spores will germinate ; then, on boiling again, these are in turn destroyed, and if left for a like period a further number will be found to exist. The process of boiling must, therefore, be again repeated, until the medium is perfectly free. *No boiling alone will destroy the spores while they remain in that condition.* This I have proved entirely to my own satisfaction.

From what has been given by Mr. Howe and by Prof. Brice especially, it would appear to me that, if no boiling alone will destroy the *spores* of foul brood, then how can 15 minutes' at 235 F be long enough? I should be inclined to believe that half an hour or a whole hour might still be insufficient. I am not yet ready to get over on Bro. Taylor's side of the fence. Even Mr. Cowan himself speaks of the great resistance of spores to acids and to high temperatures.

Suppose, for example, we boil some honey an hour, and the spores are not destroyed, and then feed this to the bees again. As soon as these same spores get into the organisms of the larvæ they would develop and produce the disease again. To my notion, then, and from the present light I have, I should not favor giving the bees honey from the foul-broody stock, even if it had been boiled an hour. The danger of extracting this honey, the danger of handling the combs at all, even if it is intended to melt them up, is so great that, in my humble opinion, it would be far safer to burn all such combs, brood and honey alike, and then bury the ashes. In any event the amount of wax and honey saved would be very small—too small to compensate for the great risk.—Ed.]

CALIFORNIA LILAC, BUCKTHORN FAMILY.

Ceanothus Divaricatus.—See Cut.

BY J. H. MARTIN.

The California lilac is a compact bush that grows to a height of six or eight feet, and is very plentiful in the southern portion of the State. It commences to bloom in January and February near the coast, and as late as March and April in the interior. The blossom is very small, but borne in clusters two or three inches in length, and varies from pale blue to pure white. It is very profuse in bloom, and a symmetrical bush looks like an immense snowball. When the plain or mountain side is covered with these shrubs it presents a deep-green appearance, and a glory of misty blue or white during its bloom. It is not so fragrant as the domestic lilac of the East. The bees frequent its blossoms, and secure both pollen and honey. With alfilarilla first and lilac next, the bees get a good start in brood-rearing. During this dry season the alfilarilla has not put in an appearance to any extent, and the bees seem to be gleaning with more vigor from the lilac.

The photo gives a very good representation of the shrub, also of the average California bee-hive. In the foreground there is a new growth of wild buckwheat, and at the right a cactus rearing its bristly head.

REARING GOOD QUEENS.

Seasons of Rest Important; Rearing in Upper Stories.

BY HENRY ALLEY.

I sometimes think that the whole story of bees has been told ; but with each issue of Gleanings there is still a good deal that is new and very interesting. I am especially interested in all articles relating to rearing queens, and such matters catch my eye readily. I can't say that there is much, even on this subject, that is very new; yet each writer has an idea that he has found a new way of doing something his neighbors know nothing about.

In GLEANINGS for Jan. 1, p. 14, Mr. Bonney describes a way to rear giant queens. This statement reminds me of the discussion some years ago in the bee-papers in relation to rearing giant worker bees. The idea was to fill a hive with all drone-comb foundation, and thus compel the queen to deposit her eggs in drone-cells. I don't remember whether or not the experiment was tested, but I do remember an experiment I tried to force a colony of bees to rear some drones. I filled a hive with nearly all drone comb, and the queen was obliged to lay eggs in drone-cells. This experiment was watched with a good deal of interest; and when I found eggs in the drone-cells I thought my experiment was working first rate. In due time the cells were capped over, but not as drone brood is usually sealed in. When the bees hatched out of those cells they were no larger than bees reared in the natural worker-brood comb.

I wonder where Mr. Bonney would draw the line on size of the cell-cups. Can't he make the artificial cups as large as half a hen's egg, and rear queens in the same proportion? If Mr. B. reared extra large queens by that one experiment, the size of the queens was owing to some other cause than the mere fact that the cell-cups were larger that the natural size. I can not think that bees can be fooled by any such device. The best that mankind can expect to do is to keep up with nature. We can't expect to go ahead very much. I am aware that a good deal can be said on this point, therefore I drop the matter here.

Good queens can be reared by nearly all the methods given. In my queen-rearing experience I find there are times in the season, even in mid-summer, when bees are not disposed to rear first-class queens. Just after the honey-harvest in July is the worst time to rear queens. Bees at that time seem to think they should take a vacation. They need rest. Every thing should have a season of rest, and why not the bees? It is said that a railroad locomotive needs rest, so that the strained parts may settle back into position, and the strain on the machinery be relaxed for awhile. I do believe in rest for the bees. I have found that from the last of July to about the first of September is a good time for rearing the very best queens

I read what Mr. Doolittle had to say about the fine queens he reared above the brood-nest. I have found that one strong colony of bees will rear an unlimited number of queens from cell cups in any season. It is a good way to get queens. I reared but few queens by that method in 1898. If the method I tested last season works well another year, most likely no more queens will be reared in my apiary, above the brood-nest. Later on I intend to tell the bee-keeping public about this new idea.

In the production of honey the bee-keeper has got right down to nature's best methods. In producing queens we are away off. In getting large amounts of honey it is not necessary to give the bees an impression that they are about to starve. But in producing queens the bees *must* be made to understand that more queens are needed, and that the existence of the colony depends upon the number and kind they are expected to rear.

In rearing queens a necessity for a new queen must be made apparent. When bees are made queenless the colony soon understand the situation, and go about the business of supplying another queen. A colony in this latter condition, I claim, will produce a much better quality of queens than a colony that has a good fertile queen, except when the colony is about to cast a natural swarm. Of course, it is understood by all, that, when queens are being reared above a brood-nest that has a queen, and at a time when there is no field forage, the bees must be fed liberally. This same thing applies to rearing queens by queenless bees if good queens are to be reared.

Wenham, Mass.

SELLING COMB HONEY.

Why Some Colonies do Better than Others.

BY S. F. MILLER.

Mr. Editor:—In GLEANINGS for March 15 you give the foul-brood bill now before the Michigan legislature. I think we ought to have a law of that kind in every State. But they haven't quite enough of it. The most important part of it they haven't got; and that is, that every expert of a bee-keeper, or any crank of a bee-keeper who is foolish enough to manipulate his bees to death by tearing up the brood-nest and spreading the brood to such an extent as to chill it cool nights, and thus cause foul brood, is the one who ought to be arrested and fined and imprisoned, and made to go out of the business.

Well, Mr. Editor, I have not asked you any questions since you first went on the editorial staff; and now I am going to give you a hard question:

In one of my apiaries I had 9 colonies of bees last season, and 7 of them were of equal strength, and not one of them swarmed. They were very strong, and I had them tiered up with a second story for extracted and big-comb honey in the brood-frames; and now the question: One of them filled every thing full from top to bottom, and the rest of the colonies gathered no honey to amount to any thing. Answer in GLEANINGS; and if you can't I will. The answer is an interesting one.

These bees were all healthy, and in good shape. Last year was a very poor one with us. I have had some experience in bee-keeping; have been in the business 19 years. I have 42 apiaries scattered over a territory of 20 miles east and west of North Manchester, and 12 miles north and south—that is, a territory 20 by 12 miles. I have them among the farmers. I do nothing but work them for honey. The farmers attend to the hiving. The most of those bees belong to the farmers, and I work them for honey. I work only about 300 colonies, or perhaps 350. I have a few in two different towns. Probably what is the poorest location one year may be the best next.

I work mostly for big-comb honey in brood-frames in upper stories. I use a queen-excluder, and put in two empty combs on one side to get the bees started up, and the rest are empty frames with good starters all around except the bottom. I can raise more comb honey in this way by far than I can in small sections, and have two combs to every hive for extracting, besides. My! but this big-comb honey does sell! People come with big jars and dish-pans and candy-buckets and tin pails. Where I sell by mail orders I ship in candy-buckets and tin pails. Sometimes an old farmer will come along and take a whole upper story right in the frames. People say this big-comb honey is by far better matured and better flavored than the small-section honey. Think of a Simplicity frame weighing 9 lbs. Bite into one of them, and you go in over your eyes. Think of an entire cluster of bees all working together instead of being divided up into 32 little squads!

I sell my big-comb honey at 10 cents per pound — cheap enough for farmers to buy for work-hands. The low price for something extra makes it sell. All colonies that I think will not swarm, and all new early swarms, I work for small-section honey; but I can control swarming to some extent by working for "big comb honey" as the people call it.

Where bees were not well protected, the loss this winter is heavy in our portion of the country My loss is altogether from starvation. I lose about ten per cent. I winter out of doors in single-walled hives. I use the Hill device, and pack well with carpet and lots of rags.

North Manchester, Ind., March 20.

[Knowing all the circumstances, you are doubtless able to give a reason why that one colony should do so well in comparison with the others, that is a correct one; but from this point of view I can only suggest that if, as you say, those seven colonies were equal in every respect so far as strength and quarters were concerned, that the one that so far outstripped the others had better workers We once had a colony in our apiary that would fill its hive full of honey when the other bees would be almost on the verge of starvation. Work? We never had any thing like them. Rob? They would clean out any thing they could fight down. The queen of this colony we called the "honey queen," and her daughters were sold at advanced prices. Now, I can only guess that possibly the queen of that particular colony you refer to is the mother of an active strain of bees; and if I am correct in my surmises you have a queen whose stock would be worth developing.

With regard to chunk honey, there are some localities where consumers take more kindly to honey in this form than in the latest section honey-boxes. That more honey can be produced in this way is doubtless true; for the bees will not store so much honey in a lot of small compartments shut off by themselves as they will in one large compartment. That is one reason why I advocate and prefer plain sections and fences—because they afford a more open communication.—Ed.]

* * *

HOW TO START BEES IN SECTIONS.

Production of Comb and Extracted Honey; a Valuable Article.

BY MRS. A. J. BARBER.

I have been, for several years, very much interested in trying and comparing different methods of handling bees for comb honey. I have been in the business for eight years, and have had fair success. For the first five years I tried a different method each year. Three years ago I tried an experiment that succeeded so well I have followed it up, and have in a measure overcome the two greatest difficulties that I had to contend with—loafing and swarming. We use the eight-frame Dovetailed hives with section-holders for 4¼x4¼ sections. Our bees would always begin to loaf or hang out on the front of the hives when we put on the sections, and most of them would do but little in the sections until they had lost several days, and then would swarm, thus losing several days of the first alfalfa bloom.

I had sixty colonies of Italians in my out-apiary, and in trying my experiment I tried to be fair. I took 30 supers of half-depth extracting-frames full of comb from the home apiary, and put them on 30 hives in the out-apiary at the same time that I put sections on the other 30 hives. In four or five days the extracting-combs were full of new honey, and the bees excited and busy at their work, while most of those having sections were loafing, and some had swarmed.

I raised the combs by putting a super of sections between them and the brood-nest. At the end of two weeks from putting on the combs those sections under the combs were better filled than those on the hives that had no combs. As soon as the combs were sealed I put them away to extract, having that amount of honey extra, and the bees started nicely in their work. I had only about a third as many swarms from those hives as from the ones with sections and no combs

I liked the plan so well that last year I had enough of those little combs built to furnish a super of them to every colony that was to be run for section honey.

I tried the plan again this year, and from 75 colonies at the out-apiary I had 8000 fine white marketable sections, about 500 lbs. of unfinished and imperfect sections, 1500 lbs. of extracted honey, and about 60 lbs of beeswax, and two barrels of vinegar. We got short of fixtures, and I had to cut out some of my little combs and have the bees build them again to keep them at work. I forgot to mention that we sell a lot of those combs to families for home use, as we can sell them cheaper than sections. When we cut them out we do so after extracting, and then the washings make good vinegar, and the wax goes into the solar extractor, and is of the best quality. We leave half an inch of comb at the top of the frame, to save putting in foundation. I do not believe we shall ever be able to overcome swarming entirely, but I believe my plan stops the loafing better than any thing else I know of. We had 57 swarms this year, but no loafing in the out-apiary. We have bought an extractor for that apiary, and will continue to run on that plan to start them to work. After the first super of sections is well started there is no more trouble about loafing. My neighbors' bees loafed and swarmed through all the best of the season, while mine were hard at work. I wish some one would try my plan, and report.

Mancos, Colo., Nov. 17, 1898.

[There, Mrs. B., you have struck a keynote I have been trying to sound for the last two years. I have found, as you say, that colonies given sections are often—yes, generally—loath to enter them; but if they are given a set of extracting-combs they will go right to work—that is, if there is any honey in the field. Now, when those colonies get into the working-fever (instead of swarming-fever) they will keep right on, even if a super of sections is given them. Some of my friends could not understand how I could produce both comb and extracted honey on the same hive to advantage. The plan I pursued was the same as this, almost exactly. I *know* it has worked very satisfactorily at our out-yard, where I gave it my personal attention, not by directing the work, but by doing it myself. In many cases I used full-depth stories of extracting-combs, but with colonies of moderate strength a half-depth story was used.

Now, I am not going to claim that I discovered this method before you did; but until some one else claims it I propose to call it the Barber method of producing comb and extracted honey.—Ed.]

RAMBLE 165.

A New Treatment for Foul Brood.

BY RAMBLER.

Whenever you find foul brood in a comb, uncap it and wash it all out under a faucet of water running with considerable force. When thoroughly washed, shake out the water as clean as possible; then make a solution of one teaspoonful of *formalin* to one quart of water. Spray the cells full of this solution; place the combs in a pile, and allow them to remain two days; then shake out the solution and return the combs to the hive. In the treatment as given by Dr. Chase he takes the combs only as they show the disease, and continues the practice until all vestige of the disease disappears in the apiary, which would probably take much time.

In treating a colony as a whole it would be necessary to put the bees on dry combs or in a box where they could be put through the starving process while their own combs and hive were being treated. The moist combs could be given them one or two at a time until all are returned. If the treatment will cure, as the doctor assured me it would, the method can be varied to suit the convenience of the operator. The great advantage gained in this treatment is the non-destruction of the combs.

Formalin is a comparatively new antiseptic, and the most powerful now in use. It is largely used by the Red Cross Society in their work in the army. It is manufactured in Germany under a secret process, and is not an expensive remedy.

To persons who wish to try this remedy I would suggest that, where there is honey in a comb, and we wish to make a thorough job, the honey should be extracted and the comb returned to the hive for the bees to clean up; then there will be no danger of other bees sipping the wash where there might be disease-germs. Or instead of washing under a faucet, which would be extremely inconvenient in nearly all of our California apiaries, as the next best thing put the combs to soak in a tank of water. Changes of water with formalin added could be used. I am aware that there has been a prejudice created against the use of drugs, or, rather, has grown from the repeated failures of their use, and to such an extent that Mr. McEvoy, one of our best authorities, comes out squarely and says that foul brood can *never* be cured with drugs. Now, we may be somewhat skeptical when a new treatment with a drug appears; but are we to take the dictum of any one person, and never make another trial? It seems to me if we do, the bars are put up against all progress and seeking for better methods of treatment. I believe that, if there is the merest shadow for success, we should let down the bars and continue the experimentation with drugs.

I can readily understand that, where the germ becomes dried down in the bottom of a cell, or where it is covered with honey, fumigation or slight spraying would have no effect; but by putting said germ to soak for several days there is a chance of rendering it open to the influence of the proper drug. I think I have made Dr. Chase's treatment sufficiently plain so that any one can give it a thorough trial.

Dr. Chase also uses another antiseptic for protecting combs from the ravages of the moth-worm. He allowed me to examine several brood-combs wherein were the well-known silken galleries and the worms, but the latter were dead. His treatment is to set the hives containing the combs in a pile of several in height; place under the bottom hive a few drops of *bisulphide of carbon*, and it soon accomplishes its mission. Comb honey can be treated in the same way, or the disinfectant can be sprinkled liberally in a room where comb honey or brood-combs are stored, with the same effect.

In his practical work in the apiary the doctor uses the Hoffman hive and frame, but it is shortened up to 14 inches in length, and he uses nine frames in a hive, which makes the surface nearly square. He thinks a large hive is not adapted to the climatic conditions in Oregon, as there is so much moisture during certain portions of the year that all portions of the brood-combs that are exposed mold.

With this shorter length the bees can cover all the combs, and mold is prevented.

The doctor's product is nearly all comb honey, and he sells it in the home market at 10 cts. per lb. He complains that the farmer bee-keepers sometimes ruin his market by selling their honey at a lower price than is necessary. Said he, "I should like to see some of those fellows who can write so glibly about selling honey in the home market just come here and try it about the time our farmers bring in their honey. I'd like to have them show me how to do it."

The doctor informed me that, though he had sold thousands of hives, there are not many bee-keepers in Oregon who are in the business extensively or exclusively. There are but few in the Willamette Valley and to the south. The greater number are in the northern portion of the State.

THE WAY THEY GROW CHERRIES IN OREGON.

The seasons are variable in this portion of Oregon. In one of the extra seasons, the doctor had produced 200 lbs. of comb honey from one colony of bees, and on one occasion one colony stored 150 lbs in ten days from fruit-bloom. The doctor did not say what particular fruit was most plentiful around Salem; but one can readily imagine that, if bees were near one of those large cherry-orchards which are plentiful in some parts of Oregon, the bees could do a good business in their vicinity. White clover makes a rank growth here; and when the weather is favorable bees do well upon it; but the doctor has known it to be so rainy during the height of the bloom that the bees would not get a drop of honey from it. I suppose it is just as aggravating to the Oregon bee-keeper to have such an abundance of water as it is for us here in California to have such a meager supply.

It is needless to say that I passed two agreeable hours with Dr. Chase; and when I left him I mentally hoped that the blessed bees would again give him success.

The grocer and the doctor gave me directions how to find another bee-keeper who lived two miles out of town; but the misty condition of the weather, and the fact that, through the blunder of the baggage-smasher, my bicycle had been sent on to Portland, caused me to leave in pursuit of it.

At Salem I had a choice of routes to Portland, either by rail or water. The Willamette River is navigable over the intervening 52 miles for quite large boats, and much further up for smaller ones.

At Oregon City, 13 miles from Portland, the river cuts its way through the basalt rocks, and a portion of the city has a very picturesque appearance perched upon the summit of a cliff. The river here plunges over a fall of 42 feet, and gives an immense waterpower, which is utilized for large woolen, paper, and other mills, besides having an electric plant which supplies Portland and all the surrounding towns with light and power. A canal with locks allows steamers to pass this barrier.

The Willamette Valley, which I entered over the Calipooia Mountains, is about 150 miles in length by an average of 75 in width; and it is most fertile and productive. Its output of wheat in 1897 was over 7,000,000 bushels. I found that much of the land was held in tracts of 640 acres. The first settlers were given that amount. Although the valley is the most thickly settled of any portion of Oregon, it would bear a much greater population should these large holdings be broken up. I also find that land is not held at such high valuation as in California. I am informed that prices range from $5.00 to $35.00 per acre.

Oregon, as the reader may know, is divided into East and West Oregon by the Cascade range of mountains. While the eastern portion is at a higher elevation, and colder, the western portion enjoys an equable temperature; and while it is termed Webfoot on account of the amount of the rainfall, the precipitation is no greater than it is in New York or the New England States. I mention these facts because I have received inquiries from the home-seeker about Oregon. In my humble judgment it is better for a young man to make his home in some of these fertile far-western States, where a few acres will produce more than a hundred on the stony hills of the far East. Bee-keeping can be run in connection with fruit-raising; and as the trees become more plentiful and larger, the possibilities of honey from that source alone are encouraging. Just imagine the work there would be for an apiary near a cherry or prune orchard of several thousand trees in full bloom! The western counties of the State seem to be the natural home of the cherry, and it can grow to its greatest perfection only where the bee can perform its work of fertilization.

There were bee-keepers of more or less local note near the little towns of Oregon City and Milwaukie; but they were out a few miles, and the mist and the mud presented an insuperable barrier to calls, and I hastened along to Portland.

Having in mind the fate of Bill Greene in Portland, and the warning it conveyed, and to fortify myself against any such occurrence, I secured a fine asylum on the fifth floor of the Goodenough building, strictly temperate, especially on the fifth floor. Here I just luxuriated a few days in writing letters and listening to

> The raindrops' showery dance and rhythmic beat,
> With tinkling of innumerable feet

on the tin roof. As I listened, and calmly looked down from my fifth story, and saw the ladies passing to and fro, I used Judge Levering's phrase about rain, and exclaimed, "Let her rip!"

Since my return to Southern California the above formula has been placed in the hands of Mr. M. R. Kuehne, of San Bernardino Co., and he is at present giving it a thorough trial with some hopes of success. Where he has not been successful he attributes it to not having conveniences such as he needed for carrying out his experiments. With his first trials he is confident that he has greatly reduced the ravages of foul brood in the hives operated upon. Further reports will be given later.

[This new treatment for foul brood may work; but in any case it appears to me it would involve considerable labor and some risk; for how is one to know whether he has washed out all the diseased cells? A good deal of apparently healthy brood has the spores of the disease in the blood; and as soon as these develop, the larva dies and decay sets in. I have come to believe that it is dangerous to fuss with foul-broody combs. I would not even melt them up into wax. I would burn them. It saves time and risk. I never yet had a case where the bees of an affected hive drew out foundation but that the resulting comb and brood were perfectly healthy.

I should like to know about this formalin, however. I am not yet satisfied that there has been discovered hitherto a real antiseptic for foul brood. If there are any of our readers who are in position to try this new treatment I wish they would give us the results of their experiments—especially with formalin.—ED.]

ANSWERS TO SEASONABLE QUESTIONS BY G. M. DOOLITTLE.

FEEDING OUTSIDE THE HIVE, VERSUS INSIDE FEEDING.

Question.—It will be necessary for me to feed my bees considerable this spring, and I wish to know how best to do it. Will it be better to put the feed in shallow troughs out a few rods from the hives, as I see recommended by some, or should I feed in the hive?

Answer.—Outside feeding has been recommended in the past by some good apiarists; and where there are no bees, either in the woods near by or at some of the neighboring farms or houses within two miles of the person wishing to feed, the plan will do. But, as a rule, the person undertaking feeding in such a way finds out sooner or later that he is feeding many other bees as well as his own, and it is not a real pleasant feeling that comes over one when he realizes that he is at dollars of expense feeding bees from which they can not expect to reap any pecuniary benefit. Then such feeding is very liable to engender robbing, especially if the feed given contains any honey, and if given in the scanty supply that is often recommended in stimulative feeding; for when the feed gives out, along in the hottest part of the day, the scent of the just stored feed from the hives places a great temptation before such bees as have just before been carrying feed to their fullest capacity, on now finding themselves suddenly deprived of any more work to do, so they set about trying to get the savory sweet from the hives from which the savor comes; and woe betide the weak colony that does not have sufficient numbers to repel the attack of a numerous throng of excited marauders which have been appetite-whetted only just before, with nothing now, in a legitimate sense, to supply that appetite. Bees placed in such a condition are made fools and robbers to a tenfold greater extent than they naturally are where "left to their own sweet will;" and for this reason alone I do not think it ever advisable to feed outside unless it can be done generously enough so that the bees can have a *full* supply the whole of the day in which feeding is commenced in the morning.

Then, again, by such outside feeding, bees can not be fed in *proportion to their needs*, one colony as compared with the others. Some of the colonies in the yard may have all the honey in their hives that is for their best good, while other colonies may be nearly or entirely destitute, and in a wholesale outside feeding there is nothing to hinder those colonies having plenty of honey from securing fully as much as those on the verge of starvation; and thus it comes about that, while the needy ones are helped, those having an abundance are hindered, from the amount coming into the hive taking up the already scanty supply of cells left vacant for the queen to deposit her eggs in. Thus we have a crowding-out of the queen just at the time when she should have all the room needed in which to deposit eggs which are to develop into the workers for the honey-harvest only a little way ahead. Then should the day in which you commence to feed prove to be one of those fitful ones which we often have in the spring, after an entirely clear, pleasant morning, when the wind rises up, and floating clouds pass over the sun, causing a few minutes of bright sunshine and an equal number of cloudy chilly minutes, many bees will be lost by trying to carry the feed at a time when they will become chilled before they get fairly loaded, or *en route* home; and the loss of a single bee at this season of the year is of more account than the loss of a score—yea, of a hundred—would be just after the harvest of white honey is past.

I know that there is something very fascinating about this outside feeding, especially seeing the bees go to and fro in their eager scramble after the coveted sweets; but after years of experimenting along this line I have come to the conclusion that such feeding, as a rule, is a "delusion and a snare;" and it is really but little more work to feed inside the hive, especially if you can have combs of sealed honey to set in the colonies which do not have sufficient stores.

During the first warm days of spring each colony should be examined to find out regarding their supply of stores, and queen. If they have plenty of stores and a good queen, such colonies need not be looked after further till the surplus is placed on the hive, especially by the person who does not think a gain can be made by a spreading of the brood. As to what plenty of honey would mean during early spring, I place the amount at from 10 to 15 pounds. Then if the weather is favorable during all of the early bloom, especially the fruit-trees, they need no further looking after as to stores; but should the weather be such that the bees can secure nothing during fruit-bloom it may be necessary to feed even those which had 15 lbs. of stores in early spring; for honey is consumed very rapidly when brood rearing has reached its height unless there is some coming into the hive almost daily to take the place of that turned into brood. Hence it becomes every person keeping bees to be alert in this matter of stores during the time of the most prolific brood-rearing. Those which do not have the supply of stores named above should be fed in some way. While many believe it pays to feed nightly for stimulating purposes, nearly 30 years of experience along the feeding line compels me to say that, with myself, there is not enough gain made by such feeding, over and above what brood the bees would naturally rear where they have plenty of stores, to pay for the extra work of feeding; hence I prefer the plan of setting in full combs of honey for each colony which does not have at least 10 pounds of honey in early spring, till they have that amount, or, better, the 15 pounds. If I do not have combs of honey enough to go around to all needy colonies I fill combs with syrup to supply the place of the combs of honey.

To fill the combs, take any old milk-pan and punch the bottom full of holes about one-sixteenth of an inch in diameter, punching from the inside out. Place this pan over a wash-tub, or any vessel having a large open mouth, in which you can have room to hold the combs about 18 inches below the pan, when an assistant will pour the (about blood warm) syrup in the pan, from which it will be distributed in small streams which, when falling into the cells, will force the air from them, thus filling them, while other modes of pouring the syrup would result in its running over the surface of the comb more largely, instead of entering the cells. As soon as one side is filled, turn over and fill the other, when the comb is hung away to drain, after which it can be used in any spot or place where a frame of sealed honey can. But this is only my preference. Others can feed as suits their fancy. I give this only as my mode of working after trying nearly every plan yet given to the public.

HEADS OF GRAIN FROM DIFFERENT FIELDS

[We make the following extracts from a paper read by R. C. Aikin at a farmers' institute in Colorado. Although much of it is well known to most of our readers, it is a subject that can not be too strongly impressed on the minds of the general public.—ED.]

There are in the minds of the masses some very crude and erroneous ideas in regard to bees, their habits, and their usefulness. As an illustration, let me tell you what has been reported to me as having been said by a farmer whose face is often seen in these meetings, and who is counted as an intelligent man. Speaking of bees and their owners, he was reported to have said, "The man who keeps bees is just stealing from his neighbors." Your humble servant is one of the thieves hereabout, according to that man's idea. I can, however, produce the proof that my robbed friend is not giving a just compensation to me (my bees) for what he is benefited by them. No, no, brethren, the bee has a very prominent and important place in the economy of nature, and particularly in relation to fruit production. Instead of the bee becoming a damage to the fruit industry, it is an indispensable aid. Instead of the fruit-grower striving to exclude the bees from his orchards, he should encourage their visits. The bees working on the fruit-bloom means far more in returns to the orchardist than that received by the apiarist.

Every bloom must be fertilized; and if not, no fruit will be borne. It is a part of the economy of nature that insects aid in the pollenization of bloom, and of the insects useful in this way the bee stands first of all, particularly in relation to fruit. Botanists tell us that the nectar in the bloom is there for the express purpose of enticing the bee, and that the flower will not secrete the nectar until it has reached that point of development when it is ready for the visit of the bee, to thus be pollenized. The nectar is sought by the bee as food, and as well a portion of the pollen. The bee in the act of gathering these substances not only aids in the pollenization of the blossom on which it is at the instant, but passing to other blossoms with the pollen dust upon its body produces cross-fertilization. The stock-man knows well what crossing means in the animal kingdom, and the horticulturist gets the same thing in the botanical kingdom by the transfer of pollen.

But you want more than mere assertions before you are convinced. This institute could not have done better than to have had a lecture by Prof. Crandall, the botanist of the Agricultural College, showing and explaining by charts all these points. The State Bee-keepers' Association once had such a lecture by Prof. Crandall, and it was most instructive indeed. He told us there are certain plants that depend exclusively upon insects for distribution of the pollen. Others are not wholly dependent upon the insects, but receive help from the winds. Again, others are self-pollenizing. Upon the whole, very few plants exist that are altogether independent of outside help in this matter.

Almost all our fruits, except the strawberry, have both sexes in the same plant, and almost the entire list depend very largely upon the bee to transport the pollen from bloom to bloom. So great is this dependence of the apple, peach, pear, plum, cherry, and such fruit, that a crop from these can scarcely be expected unless the bees have access to them. The cherry will make almost an entire failure of fruiting unless visited by bees.

The experiment station in Florida selected two peach-trees; one was protected from insects, the other was left exposed. Both set fruit; but when the pit, or seed, of the fruit was forming the protected tree dropped its fruit, but that of the exposed one matured.

It is now well known by many, that, should cold weather prevail during fruit-blooming, thus keeping the bees at home, the crop will be very materially decreased as a result, and, as before indicated, the cherry will be almost an entire failure if insects can not reach the bloom. Last year two prune-trees in my apiary, with bees under and all about them, bloomed for the first time. Considering the killing frosts of last spring I thought it doubtful if I should get even a sample of fruit; but it seemed that almost every blossom gave a prune.

Clovers of all varieties are aided in the same manner by the bee. The blossom-cups are so deep in the red clover that usually the common bee can not reach the nectar, and do not work this variety; hence it depends mostly upon the bumble-bee. Australia had no bumble-bees; and when they planted the red clover there it would not seed because of lack of fertilization; and to remedy this they imported those bees from this country, and all went well thereafter. Cut open a lopsided apple, and in the undeveloped side you will find no seed. The undeveloped part was caused by a lack of fertilization on that part of the bloom.

FASTENING FOUNDATION IN FRAMES.

Dr. Miller:—I see in GLEANINGS for Dec. 15 an article about sticks in frames for fastening the foundation. 1. Please let me know the size. 2. Will these answer for extracting without any wire in frame? 3. In speaking of the engraving under No. 1, "half bottom not yet nailed on," does this mean that there are holes in top and bottom bars for insertion of the sticks? 4. How are the sticks imbedded in the foundation? 5. Which foundation, "medium or light," is best?

Ashland, Ore., Jan. 23. W. C. MYER.

1. The length is ⅛ inch less than the inside measure from top to bottom bar, and the sticks are $\frac{1}{16}$ inch square. The reason for having the sticks ⅛ inch shorter than the space between top and bottom bar is that it is easier to handle the shorter sticks in putting them in; and, besides, basswood (of which timber the sticks are made) increases in length as well as thickness when it swells, and when the wood is thrown into boiling wax I think it likely that it increases in length.

2. Yes. I extracted about 300 pounds from such combs that had been built the same summer, and there was no trouble.

3. No. The sticks do not necessarily touch either top-bar or bottom-bar, and there are no holes to let them in. The object of having the bottom-bar in two pieces is to allow the foundation to go between the two parts. The foundation is cut ½ inch wider than the inside depth of the frame. That allows ¼ inch at the top to go into a saw kerf in the top-bar, and ¼ inch at the bottom between the two parts of the bottom-bar. The foundation is cut so as to make a close fit to the end bars at each side, the frame is put on the board, such as is commonly used for putting foundation in frames; the foundation is slipped into the saw-kerf of the top-bar, and then the second part of the bottom-bar is put in place, a single small wire nail is driven at the middle to fasten the two parts of the bottom-bar together, and then the remaining nail is put into each end of the bottom-bar. Top-bars and end-bars are 1⅛ inches wide, and each part of the bottom bar ½ inch wide. That allows ⅛ inch between the two parts of the bottom-bar for the foundation.

4. If you put in the dry sticks, the bees will gnaw them out every time. Put a little bunch of the sticks in melted wax, keeping the wax where it will stay hot. At first the air and moisture in the sticks will make a great frothing, and you will not imbed any till all settles and becomes clear. Then with a pair of tweezers, or something of the kind, lift a stick out of the wax, lay it in place, and press it into the foundation with a presser made of a little board about as long as the sticks, or not quite so long, and about ⅜ inch thick. The edge that presses in the sticks must be kept soaked in water, so the wax will not stick to it. Five sticks are used in a frame, one about an inch from each end-bar, the other three at regular intervals. In rare cases I've had the bees gnaw at the sticks, even when cooked in wax, but I don't know why.

5. I have used rather heavy foundation (some I've had on hand for a number of years), but it may be that light foundation would do just as well. Certainly just as light foundation can be used as if wire replaced the sticks.

These sticks allow the combs to be built solid to the bottom-bar (but sometimes the bees will dig under), and I know of no advantage in any way that the wires have over them.

Marengo, Ill. C. C. MILLER.

PERFORATED SEPARATORS, ETC.

1. I have a lot of wooden separators, and should like to know if it would be any advantage or disadvantage to bore ¼-inch holes through them so as to allow a passageway.

2. What do you strain your extracted honey through, and in what way?

3. About how often and how much do you feed an average colony to encourage brood-rearing?

4. Is there any advantage in having a bee-way on top of the sections?

5. I wonder how many put sections in a damp place awhile before folding, instead of wetting or steaming them. It goes ahead of either way if you do it right.

WALTER GARABRANT.

Mendham, N. J., Mar. 28.

[1. Separators with perforations in them are better than those that are plain, I believe. I would suggest that you try a few supers equipped in this way: Half the super with plain separators, and the other half perforated. Note particularly the filling of the sections, and the rate of filling of the two lots.

2. We recommend an ordinary cheese-cloth sack, suspended under the mouth of the honey-gate.

3. About half a pint of syrup daily is considered a very good allowance for stimulative feeding.

4. There must be a beeway in the top of the sections, provided the supers are tiered one above the other. Closed-top sections are used only when one super at a time is allowed on the hive; but if there is a good honey-flow and a big colony the bees work at a disadvantage when they have only one super.

5. A good many practice the plan; and I

believe it results, in general, in less breaking than where the grooves are dampened just before the folding.—ED.]

HOW TO PREVENT SWARMING.

As soon as your bees get strong enough to show signs of swarming, get some combs and put an upper story on your hives (if not already on). Place a queen-excluder between the upper and lower story. Now put queen-cells in the upper story, with some two or three frames of brood up there, with an entrance at the rear end of the upper story. As soon as your queen has begun to lay, lift your upper story off; raise your excluder, and catch the old queen, and kill or do something with her; then put your upper story back without the excluder, and the work is done, and your hive has not been without a laying queen at any time; and my experience is, the young queen will not swarm, no matter how many bees you add to her hive. I think this the cheapest way to manage them.

Elmont, Tex., Feb. 7. J. F. TEEL.

[This is an excellent way to requeen with young blood; and while a colony with a young queen is not as *liable* to swarm, perhaps, it would hardly be safe to assume that such colonies would not swarm. If you try the plan on a larger scale I think you will agree with me.—ED.]

OLD-STYLE WIDE FRAMES; DOUBLE-TIER EIGHT SECTIONS.

I noticed an article in my last GLEANINGS, Feb. 1, written by Alfred Atherton, of Oramel, N. Y., referring to the old-style wide frames, and also noted the editor's objections to the same. I, like Atherton, prefer them to any other device for procuring comb honey. I have never found the objections referred to by the editor. I never use dummies to fill with—I always put on full top (48 sections). You speak of their being hard to get out of a hive. Perhaps you don't go at them right. Let me refer you back to GLEANINGS. June 1, 1898, p. 438, you will notice that the correspondent took 6000 lbs from 60 colonies, spring count, and asks if you would like to know how he did it. I will tell you the secret for him (I don't mind telling you). He used old-style wide frames, and says they are good enough for him. My wide frames are the same width as my sections (1½ in.), and I use plain sections and the fence separator, double tier.

Noble, Ill., Feb. 3. E. E. McCOY.

[Every one to his likes and dislikes.—ED.]

NIVER'S EXPERIENCE WITH A BUZZ SAW.

Dear Friend Root:—As our friends the Quakers say, "the spirit moves" me to have a little chat with you this morning, as I am off duty, and away on a visit to a friend here in this city of prisons. GLEANINGS for Dec. 15th had not shown up when I left Groton yesterday; but the Dec. 1st number had an experience in it, page 880, on making hives by hand, that seemed to touch a tender spot in my memory, and a somewhat similar experience has left tender spots on my fingers and ribs, so it is natural to write it to you in order that you may relax your regular "editor Root" dignity of countenance and smile with me.

Since Morton's death I have been working in the shop with the machinery, and finding out how easily a stick will come back at your ribs from the saw; and although I haven't caught one yet on the nose, like that chap who saved 90 cts. by building bee-hives (or came out just even if putty isn't cheap in the spring), I did worse; for, in forgetting the old saw, "don't monkey with the buzz-saw," I learned that stopping a buzz-saw with my fingers isn't a success. It slashed into two fingers of my left hand—not so badly as it might have done, as it left bones intact, but bad enough to inspire a very wholesome respect for that same "hollow-ground cut-off."

Auburn, N. Y., Dec. 17. S. A. NIVER.

WIDE ENTRANCES FOR HOT CLIMATES; SWARMING DIMINISHED.

I have been troubled very much every year from my combs melting. I used only a ½-inch entrance, whole width of hive, and my foundation and new combs would all melt down till this year when I blocked all my hives up on ⅞-inch blocks, and never lost a comb, and my bees seemed more at ease. There was not such a roar from them in fanning, but my bees are right out in the sun, and it would make quite a difference if they were under a shade. But I find the bees winter much better out in the open, and commence rearing brood earlier.

There was not a general good honey harvest here this year, although I made a rousing big crop of combs, nearly 150 lbs. per colony.

I forgot to mention my good "luck," if I should so term it. I had only two swarms to issue the whole season, from my home apiary of 125 colonies that I set up on the 4 ⅞-inch blocks. Swarming has been our greatest trouble in past years, some days having as many as 60 swarms. J. K. HILL.

Uvalde, Tex., Dec. 7, 1898.

THE TALL SECTIONS.

I see on page 127, Feb. 15, friend Aikin tells why sections with a *long* entrance are better. That is the kind I have been using for years, and you have been making them for me. Try them. HENRY WILSON.

Clinton, Ill.

FOUL BROOD IN CUBA; WHENCE CAME IT?

Mr. W. W. Somerford said, page 82, that foul brood was introduced by D. A. Jones sending queens to Cuba. It is very probable that Mr. Pedro Casanova was mistaken in this respect, and that this assertion is unjust to Mr. Jones, because foul brood was spread all over Cuba long before this. Dr. Dzierzon, in Germany, infected his apiary by feeding Cuban honey in the year 1848, and lost nearly all his colonies. So it is very probable that, unknown to Mr. Casanova, foul brood was introduced in his apiary from the neighborhood. L. Stachelhausen.

Converse, Tex., Feb. 9.

WOOD VERSUS TIN SEPARATORS.

"Please tell me your opinion as to the merits or demerits of tin versus wooden separators," writes a correspondent. "The reason I ask is that the modern super is not made wide enough to admit of wood separators, but tin can be used. Will bees store as much honey with tin as with wood?"

Answering the last question first, I think bees make no difference between tin and wood as to the amount of honey stored.

Aside from the matter of cost, durability, and thickness, the chief difference between separators of tin and wood is that, on account of the stiffness of the grain, wood easily remains straight and stiff lengthwise, and tin bends lengthwise. On the other hand, wood bends more easily than tin in the other direction, and, what is of still more consequence, the wood shrinks and swells, and tin does not. The result of these differences is that tin is the proper thing to use where the separators are held rigidly in place lengthwise by being nailed, and wood is better where separators are not nailed. Nail a wooden separator in place, and it will curl up in a very unsatisfactory manner. It will do better with a single nail at each end, but that is not entirely satisfactory. If you attempt to use a tin separator without nailing, it is very easily bent in the direction of its length, and it doesn't take much bending to throw it a quarter of an inch out of its proper plane, which means that a section one side of it will be a quarter of an inch too thick, and its opposite neighbor as much too thin.

You will then see that it will not do to substitute tin in a super designed for wood, and *vice versa*. But I don't understand what kind of modern supers you can have that are not wide enough for wooden separators. Your separators are hardly more than $\frac{1}{16}$ thick, and your supers are hardly less than 12 inches wide. That will admit six sections with their accompanying separators, providing your sections are not more than 1$\frac{15}{16}$. Such wide sections are not much used now, and I think most supers for eight-frame hives are 12⅛ inches wide, making it necessary to use a follower and wedge to fill up the vacant space when sections are 1¾. In any case, if there is not room enough for a given number of sections, one less across can be used, filling up the space with followers and wedges.

Marengo, Ill. C. C. Miller.

TRAVEL-STAIN; A THEORY AS TO ITS CAUSE.

My observations lead me to believe the main cause of travel-stain to be the clustering of very young bees on the combs. The warmth of the cluster and dejections of young bees discolor the cappings. That seems to explain why stained cappings are seldom found in queenless colonies or others having no hatching brood in them. To have sections finished by newly hived swarms, and removed before any young bees have emerged from the cells, I have found in my locality to be the best way to prevent so called travel-stain.

Jas. Comeau.

Henryville, Que., Jan. 26.

SWEET CLOVER; HOW TO GET RID OF IT, ETC.

Mr. E. Smith's advice to L. A. Sawyer in regard to getting rid of sweet clover is sound. It is just what they do here, and (I am sorry to say) they succeed. Sweet clover is termed a noxious weed in this locality. Street commissioners, road supervisors, and railroad-section foremen have strict instructions to cut it before it blooms. In this, however, they do not always succeed; but they do as a rule get at least the most of it cut before it can ripen its seeds.

As I saw this wholesale destruction I remonstrated vigorously, and I used A. I. Root's well-known phrase, "It will never trespass on cultivated soil, or any pasture;" but there I got my foot in it. I was shown places where it had got a rod or more into a pasture-field and also in meadow.

Will cattle not eat it? Yes, they do; but not as long as they have plenty of June grass; and by the time June grass is scarce the clover is too big. If the farmers would cut it only once, then the cattle would take care of it after the June grass is gone. A year ago last August my bees were storing honey fast, and it all came from the sweet clover. We had had some rain, which had started the clover anew. One day I went to Plasterhead, about 3 miles distant, and along the roads I saw a sight of beauty — the fresh green of sweet clover, and only 6 or 8 inches high, loaded with bloom, and my bees were fairly swarming on it. A flock of half-starving cattle and pigs tried in vain to get their heads through the fence and get a bite of it; but as I returned, three men were at work, cutting down the "noxious weed" that the starving cattle were not allowed to get a bite of; and next day my bees began robbing. I had 62 colonies, and might have got many pounds of honey had it been left; but it is a "noxious weed," and must go. Julius Johannsen.

Port Clinton, O., Feb. 7.

SWEET CLOVER IN THE SOUTH; QUALITY OF THE HONEY.

I see so many running down *Melilotus alba* that I feel like saying something in its behalf. It is the first of our forage-plants to come in the spring, and the last to be killed down in the fall. Stock eat it readily until it becomes rather woody, and even then eat the smaller shoots. We grow it for pasture, for hay, and as a honey-plant. We have no trouble whatever in getting rid of it here. Our greatest trouble is in keeping it set where stock is allowed to run on it. Melilotus being a biennial, we either have to keep stock off or resow every two years. It makes a rather thrifty growth on our thinnest soil, and even where the soil is washed, leaving the white limestone exposed, you will find our melilotus there by itself. We keep from 40 to 50 colonies of bees, and almost our entire crop of honey is from this plant. Our extracted is *almost* transparent (that is, almost water-white), and of a splendid mild flavor.

My uncle (a nurseryman), from Southern Illinois, was with us during the holidays just past. He was something of a bee-keeper until foul brood got a start in his yard last summer while he was sick, and left him nearly beeless. He pronounced our melilotus honey as good as the best. We usually sell all we get here at home, and have none for sale now. Hence it can not be said that we have an ax to grind because we praise it, but because we think we have a valuable forage and honey-plant in melilotus. L. H. GOULD.

Crawford, Mass., Feb. 1.

THOSE IDEAL PLAIN SECTIONS; BETTER FILLING.

I was fortunate enough to secure through Lanetter & Co., Sydney, 1000 of your Ideal sections and some fences; and although we are having a rather poor honey yield I have managed to get some of them filled, and I must tell you that all I have shown them to consider them far ahead of the square section so far as pleasing the eye is concerned, and that has a deal to do with the selling of a honey or other crop. One of my best retail customers in the city of Brisbane remarked on being first shown them, "Yes, they are much nicer," subsequently labeling, "This season's comb honey; perfection." The bees seemed to fill them more readily, doubtless because of the freer communication afforded by the fences. J. M. MITCHELL.

Glenhope Farm, Indooropilly,
Queensland, Aus., Jan. 2.

COLOR OF CAPPINGS DEPENDENT ON SEASON.

I have noticed that honey capped during a good flow is generally whiter than that capped when honey is scarce, and this Mr. Crane partly acknowledges; for he almost says that the upper part of a section is capped white because honey was coming in plentifully, while the lower portion was darker, because honey was then coming in slowly; and in another case the middle portion was dark because it was capped between two good honey-flows. Has Mr. Crane ever bleached eight sheets of foundation and placed them in a hive when honey was coming in? I have done this, and the combs have been as white as snow. My reasoning on the matter is as follows:

Wax, as produced by a bee, is snow white, as every one knows, and during a hasty period of comb-building the combs will be pure white; but should the bees have the time and labor to spare, then they color the wax to correspond with their surroundings; hence a new comb built adjoining an old dark comb will, under ordinary circumstances, be colored by the bees, so as to keep up as much as possible a uniform appearance within the hive. Take another instance:

Place a white and a black comb in any brood-chamber, and see if the bees don't color the cappings to correspond. So you see my theory in reference to getting white comb honey is that we must give white foundation and keep every thing within the hive as white as possible, and try to have our honey capped during a rich honey-flow. These things may be difficult to control; but if we know the cause for certain, then we can avoid many a mishap. Can not any observer of nature verify what I have said, when we find so many insects coloring their nests or eggs to correspond with adjacent articles? and has not nature made many an insect's color to correspond with its home? If you take a frame of old dark comb and cut off a portion, and place it in a hive, won't the bees color the new wax to correspond, where the old and new unite? But as honey comes in quickly after they have started to build, they run off to pure white at the remaining portion of the comb. I have not noticed particularly, but I dare say that bees will cap dark honey with darker cappings than they do white honey, if there is not a heavy flow on at the time. Ask Mr. Doolittle the color of his queen-cells built on light and dark combs.

JOHN R. V. BRAHAM.

Ewarton P. O., Jamaica, March 6.

LARGER QUEEN-CELLS.

In reply to an article I saw in GLEANINGS to-day, with regard to rearing larger queens in large sized cell-cups, I will say that my experience has not panned out that way. I find that bees will always contract the edges of the cell-cup, no matter how large the base; or they will expand the base and then contract as the cell is drawn out, even in worker or drone cells. I have experimented with this plan, but could see no difference in queens. A queen-rearing colony depends largely upon this condition. J. D. FOOSHE.

Coronaca, S. C., Jan. 4.

AN OLD FRIEND IN A NEW LOCALITY.

I have just landed here 200 miles north of Newhall, with all my bees, help, and appurtenances, to run two apiaries and a home. My! what a job! Every hive carried safely, and here we are in the midst of alfalfa fields, with melting snow in sight on the Sierras, flowing water over the fields, and leaving us all the large carp and trout on the grounds that we can use. R. WILKIN.

Famoso, Cal., Mar. 30.

IS HONEY A VEGETABLE OR ANIMAL PRODUCT?

Will you please tell us whether honey is an animal or vegetable product? And are the molecules in honey of the same nature as those in the nectar of flowers?

HERBERT L. MCLALLEN.

Trumansburg, N. Y., Jan. 31.

[There is a difference of opinion as to whether honey is a vegetable or animal product. Strictly speaking, it is of vegetable origin, and should really be considered such; but the bees do nevertheless change the nectar of flowers, a vegetable product, into honey that has other elements placed therein by the bees during the process of ripening. The nectar of the flowers is not the same as honey.—ED.]

"HE;" THE IRISHWOMAN'S CALF.

I want to tell Bro. Hasty a story in support of using the pronoun *he* on all occasions, and without regard to sex. An old Irishwoman lives near us, whom we all call Aunt Mary. She is quite old (she does not know how old); can not read or write, is very energetic, and a great talker — surely a good "household" authority. She keeps a cow, a pig, and chickens. A year ago last summer her cow raised a calf that gave her a great deal of trouble. On one occasion "he" wound her up in the rope by which she led "him," and trampled her severely. Said she, "I thought sure an' he would kail me, and all I could do was just to say, the Lord have mercy! and he jist kept a pullin' at the rope." And again, she said, "I want to sell him. He's a nice calf. He's a heifer."

With this Mrs. B. came near going head first into the wash-tub over which she was standing, in her effort to keep back the laugh. You see she had not learned the rules of literature yet.

Now, Mr. Editor, Mrs. B. has it in for you just a little for what you said on p. 82 about associating "she" with "softness," for she says some of the softest things she ever saw were two-legged animals in the shape of men, and she has seen women just as "smart" as their brothers or husbands. Of course, she makes no allusion to her husband or to you either. J. W. BEAUCHAMP.

Hatfield, Mo.

[Aunt Mary was fully justified in using the pronoun *he* when referring to her obstreperous heifer. As I said, I associate with the pronoun *he* smartness and wickedness; and if that calf did not possess those qualities, then he should have been called *she*.

Yes, I know there are some men who are quite feminine in their general make-up, and I should be inclined to refer to them as *she*. There, I had better not say any thing more, lest I get into trouble —ED.]

SELLING HONEY; SOME OF THE PLEASANT FEATURES OF THE BUSINESS.

Soon the time will come to dispose of the crop of honey we shall have been able to secure, and, at the same time, develop the home market. After I had traveled over my usual route last fall, one warm sunny day I went in a new direction. While enjoying the warm sunshine of a beautiful fall day, having driven about three miles I espied a man pulling turnips. I left the team and went to him and inquired if he would like some honey. His reply was: "Wall, now, yes. I would like some honey; but you see times are hard and money is kinder scurse, and farm stuff don't fetch much; so I guess I'll have to do without it."

I had quite a talk with the tiller of the soil, and it ended in my selling him eight one-pint jars of extracted honey. I took my pay in turnips.

The next place I called at I took an old sewing-machine, and I will endeavor to make a section-cleaner out of it.

In this way I passed a most enjoyable day in disposing of 300 pounds of extracted honey and 100 pounds of comb.

There was one little incident which pleased me more than all else. At the last place I called, there were some children. The mother said she would like some honey if she had any change. One of the little girls asked me if I would give them some honey for some guinea pigs. Well, I could not refuse the little tot; and so, in exchange for a pair of the guinea pigs, I gave her a pair of rabbits and some honey, as she thought the pigs were worth the rabbits and honey together.

When I got home I had a mixed wagonload consisting of turnips, eggs, beets, a sewing-machine, a calf, a pair of guinea pigs, and $16 in money.

Why is it not as well for the producer to exchange his product with those he deals with? Perhaps it is not convenient for all to do so; perhaps others would or could not get the enjoyment out of such a day's work as I do. The pleasure that the little girl got from the exchange of the rabbits and honey for the guinea pigs was worth more to me than all the money I received. I gave the pigs to another little girl, and she was made happy.

Charlton City, Mass. GEO. L. VINAL.

MILLER'S RACK FOR HAULING BEES; HOW TO MAKE IT.

Dr. Miller:—I can not get as much from the photo in GLEANINGS as to construction of your rack for hauling bees as I should like. Could you make a diagram? What are the dimensions of the two pieces you build on? Do you make the under side, or floor, close. How fasten top pieces to the frame? How fasten the hives to prevent toppling over?

Steel Creek, N. C., Jan. 18. A. L. BEACH.

I'm afraid I couldn't make a diagram that would add much to the idea you get in the photo; but I think that, by answering your questions, I can give enough information to enable you to make a rack. Its advantage is that, at a very small expense, you can make one to fit any wagon you may happen to have. It is no doubt better to have a wagon with springs, but that is not absolutely essential.

Answering your questions in order, the two pieces I build on are fence-boards 4 inches wide, but that's nothing to you; they must be just what the wagon requires. The under part of the rack, or floor, is not close. The top pieces are nailed on with 2½-inch wire nails. The hives are not fastened on at all.

Now I'll try to answer more in detail. You are supposed to start with a common wagon-box. Make a frame after the usual manner of making a wagon-box deeper, having it of such depth that, when put on, it will make your box just deep enough to take in your hives, for you will want to fill your box with hives before putting on the rack. Your rack may just as well be two feet or so longer at the back end than the wagon box, so it will hold more hives, and you can reinforce your frame at the back end by nailing on pieces at the side; otherwise the hives might break down the part that projects. Cleats after the usual style must be nailed on the outside or inside of your frame to keep it in place on the box.

Now take fence-boards 6 inches wide, and cut into lengths about 7½ inches longer than twice the length of the bottom-board of your hive. If your bottom-board is 22½ inches long, as mine are, then your boards must be cut 52½ inches long. The number of these boards must be one more than the number of hives you will have on each side of your rack. Now distribute these boards on top of your frame, spacing them at equal distances, so that the space from center to center shall be 1⅛ inches more than the width of the bottom-boards of your hives. Nail them on. Take a board 4 inches wide and the whole length of your rack, and nail it on the top of these cross-boards centrally. That's to keep the two rows of hives apart. On each side, to keep the hives from sliding off, nail a strip an inch thick and 1⅛ inches wide. To keep the hives in their places sidewise, nail on the center of each board, and, running in the same direction as the board, a strip about 18 inches long and ⅞ square. Of course, these strips may be more than 18 inches long, but there's no advantage in it. At the front end and at the back end, instead of having this strip at the center of the board place it on the outer edge and space the boards accordingly. For lighter handling the rack may be made in two parts, as is the one in the photo.

The hives are loaded in the wagon-box, running crosswise, and between each two is placed a stick ⅞ inch square, and as long as the inside width of the wagon. Thus the hives are held firmly in their places. Then the rack is put on and filled. C. C. MILLER.

Marengo, Ill., Feb. 23.

EATING A POUND OF HONEY AT A SITTING; 4×5 VS. 3⅝×5 SECTIONS; A POINT FOR PLAIN SECTIONS.

Mr. Editor: — Since reading what Stenog says in GLEANINGS, p. 79, in regard to eating honey, I have wanted to tell of a little circumstance that happened in this neighborhood. Two fellows on their way blackberrying called at my apiary and bought two well-filled 4×5 sections of honey, and took them along to sweeten their noonday lunch. We afterward found the pieces of the sections, and the fellows admitted they ate it all at the one meal. They said they would not if they had thought before cutting into them; but after cutting, the honey leaked so they had to eat it to save it; and the strangest part of it is, they claim to have felt no discomfiture from it.

I was much surprised at Mr. Crane's finding the 3⅝×5 sections so poorly filled (p. 125), as I tried a few of them last season, and they were much better built out to the wood than my 4×5 beeway sections on flat tins without separators. They were all filled out almost exactly alike, much better than the one shown on page 126, but I was disappointed in their weight. One 12-lb. case weighed 11¾ lbs. One lot of about 70 lbs. averaged 14⅓ ounces. I should much prefer to have sections weigh an even pound. I find, in using sections without separators during a light honey-flow, the bees are very apt to fill all the sections one-half or two-thirds full, while with fences they fill what they do work in, and leave the rest comparatively untouched. EARL Y. SAFFORD.

Salem, N. Y.

[Most markets prefer sections weighing a little under a pound. The 3⅝×5 is not intended to hold quite a pound.—ED.]

PLAIN SECTIONS COME TO STAY.

I notice Doolittle gives you a "raking over" in the *Progressive*, regarding plain sections, etc. Never mind. "They laugh best who laugh last," and you can afford to let them laugh now. The plain sections and fences are come to stay; and my regret is that I did not order all of that kind last season instead of some of the old kind. I wanted to go slowly, as some would say; but I am going faster now. I took up 1500 of the old kind to the mill, and cut them down so that they will take the place of no-beeway ones. I had them done in the jointer, and it was not a very big job either. Common sense is on the side of the new section. G. A. DEADMAN.

Brussels, Ont., Mar. 16.

BEGINNERS' QUESTION BOX

BY E. R. ROOT.

G. U. U., Mo.—Sometimes colonies under very adverse circumstances will winter very nicely, and those under favorable conditions will winter poorly; but as a rule, colonies in double-walled protected hives winter far better than those in single-walled.

L. A. S., N. Y.—Stimulative feeding can be practiced now at any time—the sooner the better. In general, bees should not be fed during cool nights. About half a pint of syrup fed daily, or even a less quantity, will start brood-rearing going at a good rate; but hives should be well packed and well protected if the weather is at all cool; otherwise there is liable to be a chilling of the brood during a sudden change of weather.

W. W. S., N. Y.—We have no real preference between the super for holding 4x5 and that holding 3⅝x5. The preference will be based somewhat on the fact of your using an eight or ten frame hive. If the latter, then the Danzenbaker super would be more convenient. If the former, then the Ideal would be the one. The 4x5 sections in some markets may be a little more salable because, for the same weight, they look larger; but either section sells well. In New York, at least, tall sections are coming rapidly into favor, and it seems it will be only a question of time before the 4¼ square will be shoved out of the New York markets.

EDITORIAL
BY
E. R. ROOT

CONTINUED warm weather is bringing a smile to many a bee-keeper.

OUR 251 outdoor chaff-packed colonies are all alive except 16; but a good many of the survivors, I am sorry to say, are somewhat weakened.

A PECULIAR SPRING.

I DO not know how it has been with you, friends, but with us the cold March winds have continued on into April, and it was only yesterday, the 10th, that we had it really warm enough for the bees to fly; but it is encouraging to note that the weather is gradually moderating. There seem to be no fits and starts about it this year. Almost every spring heretofore, so far as I can remember, we had some very warm days followed by some that were decidedly wintry, one extreme following the other; but this spring it has been one cool or cold streak almost continuously. We now expect better weather. *So much* cold ought to bring warm.

WING - CLIPPING; CREDIT TO WHOM CREDIT IS DUE.

FROM our recent foreign exchanges it appears that I am the sole promulgator and originator of the practice of clipping queens' wings for the purpose of more easily controlling swarming. Not only this, but they have been making out that I began the practice forty years ago—three years before I was born. Why, my dear friends across the big pond, it is only very lately that I have become a convert to the practice; and it was then only when it had been hammered into me by bee-keepers more practical than I — yes, by bee-keepers who practiced wing-clipping, I was going to say, almost before I ever saw the light of day. While the practice is not entirely universal in this country, it seems to be general with very many of our best bee-men.

THE EFFECT OF THOSE RAINS IN CALIFORNIA.

IN regard to this the following note just received from Mr. Martin, who is keeping us posted, will explain:

> I wish to make a little further report upon the honey prospects for this portion of the State. The majority of the bee-men think that the rain came too late to be of material benefit. However, it came early enough to save thousands of colonies of bees. There will be enough honey gathered to tide the bees through, and perhaps a little surplus may be gained. This may be particularly the case near the coast; and from the appearance of honey-plants near my own apiary I am in hopes of getting something of a honey crop. The black sage is very plentiful, and it is making a good growth. It will be a little later in blooming, but will surely yield some honey. At this date the bees are getting honey from alfilaria and the California walnut. My bees are quite strong, and ready for any nectar that comes along. In and near Pasadena, where the bees have access to orange bloom, I learn that the bees are swarming; therefore the bees are hopeful themselves. I have great faith that we near the coast shall have a fair honey crop; at any rate I will stay in Southern California and try it. J. H. MARTIN.
>
> Shermanton, Cal., April 4.

WINTER LOSSES UP TO DATE.

REPORTS are still coming in, showing winter losses here and there over the country, and it begins to look now as if the mortality would be greater than in any other year unless it was during the winter of 1880–'81, when the losses were greater than ever known before or ever will be; but at that time the correct methods of wintering were not as well known as now, and it is not possible that the loss will be any thing like as severe. But very fortunately the severe losses are by no means general. In one section of Michigan, where there have been heavy snows, there is a general report that the bees have wintered nicely, when a year ago there were very heavy losses. In Indiana the mortality has been great. In New York the bees have wintered fairly well, because in that State bees are generally wintered in the cellar; or if not in the cellar, those on summer stands have been well protected by heavy snows.

The peculiarity of the past winter was that zero weather was not confined entirely to the North. Even as far south as Texas there was considerable zero weather as well as in other portions of the South. The general unpreparedness of the bee-keepers for such extremes will make wintering losses in the South as great, perhaps, as in the North. Here at Medina, at this date (April 12), the weather is growing daily more mild, and we hope the worst is over.

BLEACHING THE SURFACE OF TRAVEL-STAINED COMB HONEY.

I HAVE often wished that there was some method or process by which we could take the ordinary travel-stained comb honey and whiten its surface by bleaching or washing. Tons of first-class honey — the very best in the world—is travel-stained. It is well filled out, even in surface, and in quality the very best; but it must sell for a cent or two less a pound, simply because it is travel-stained. If by some simple process these soiled surfaces could be cleaned or bleached white, or nearly white, it would make a difference of hundreds of dollars in the bee-keeper's profits in a single season. It would be a great boon to the commission men, because a "good-looker" always sells more readily than a "poor-looker."

I received a note from Mr. Byron Walker, who seems to be very confident that he has found a process that will accomplish this result; and as soon as he gets over his rush—for he is indeed a very busy man—he proposes to tell the readers of this journal the *modus operandi*. I wrote him that, if he had a successful method, he had made a very important discovery. In answer he expresses his confidence in the method, stating that it is so simple he wonders nobody ever thought of it before. Indeed, he is rather of the opinion that some one must have known of it.

What good, you may say, is all this without knowing the method? In the first place, I wish to find out whether some one else has a plan; and in the second place I wish to draw attention in advance to the importance of such a discovery and its value to bee-keepers generally. A good thing should be heralded in advance.

NO-DRIP CLEATS FOR SHIPPING-CASES; HOW WIDE AND THICK SHOULD THEY BE?

When we first put out what we called the no-drip shipping-case—a case that has a paper tray in the bottom, and cross-cleats just thick enough to raise the sections off from the paper, we made the cleats ¼ inch thick by about ⅝. They were made thus for about a year; then there came a general clamor to have the cleats made thinner. Accordingly the following season, and even up to the present time, we made the no-drip cleats ⅛×⅝. Henry F. Hagen, of Rocky Ford, Col., instead of nailing these cleats in the bottom of the case, smears a little honey on the under side of the cleat, and simply lays it on the paper, spaced a proper distance apart. Of course, it is well known that honey is almost as good as glue when used in this way; and *because of this very fact* arose the necessity of a cleat to raise the section off from the paper. But very lately one of the most extensive honey-buyers in the United States, Byron Walker insists that it is a great mistake to have the no-drip cleats less than ⅜ thick; that those only ⅛ thick are not thick enough to prevent honey from coming in contact with the bottom of the sections when there is very much drip. As he speaks from the standpoint of a producer as well as from that of a buyer, it may be well to consider whether we were not wrong in changing from thick to thin cleats. There is this to be said in favor of the thinner cleat: It is quite thick enough providing honey is attached to the wood of the section as it should be; but much of the honey that was sent to market early last season was in sections that were only partly filled and poorly attached. In consequence there is a large amount of drip, and this will not be taken care of by the ordinary thin cleat.

From the standpoint of a manufacturer we desire to please our friends and customers; but before we make a change again we must have a general consensus of opinion favoring either the thick or the thin cleat; and this opinion should come from both the honey-buyer and the bee-keeper, not forgetting the commission man, who has unlimited opportunity for observation.

HOFFMAN FRAMES, AND HOW TO HANDLE THEM.

A very interesting article on this subject appears in the *American Bee Journal* for April 6, from the pen of our old friend and correspondent C. Davenport, one of the most practical writers in all beedom. He has come to be recognized as such by the fact that his communications appear in nearly all the leading bee-journals. In the article above referred to he says: "I consider self-spacing frames of some kind (if hives have to be moved to and from out-yards) as the only kind worthy of being considered; and even if hives are to remain in one yard permanently, I think self-spacing frames are far superior to loose-hanging ones." Of Hoffman frames he says that, after having tried a great many other kinds, he greatly prefers them to all others. He says further, "I do not think there is any locality where propolis or bee-glue can be much worse or more plentiful than it is here."

The main reason for his success in the handling of these frames he attributes to a simple tool which he uses. It consists of a piece of steel 1½ inches wide by about ¼ inch thick. It is spread out and drawn down thin at one end. The other end has the width reduced, and is formed into a hook.

In comparing the rapidity with which he could handle colonies on Hoffman frames, and those on loose or unspaced frames, a visitor who timed him gave him a record of 1½ to 2 minutes per colony on Hoffman frames, and 3 to 4 minutes on loose-hanging frames. He attributes this difference in results to the fact that the self-spacing frames can be shoved together *en masse*, while the other frames must be placed carefully in position *one at a time*.

That was about my experience when I first began to push this frame into prominence as long ago as 1890 — a frame that was then well known, and was some twelve or fifteen years old at the time I began to tell about its merits.

At one out-yard, in 1891, I had about half the colonies on hanging frames, and the other half on the Hoffman. I ran both sets of frames together until I made up my mind that I could save time by transferring all the remaining combs in hanging frames into the Hoffman.

One feature that Mr. Davenport does not touch on is the facility that one has in handling Hoffman frames in groups, three or four at a time. I scarcely ever manipulate a colony on these frames without handling the frames in pairs or trios. I may possibly remove one frame of the division-board; then if I desire to form a nucleus I lift out three frames, leaving them stuck together just as they were in the hive. If I wish to get at the brood I may lift out a pair of frames from the center of the brood nest; scan the brood surface exposed, and as soon as I have satisfied myself I insert the frames in their position. Two shoves with the pry or tool crowd all frames back into their exact position, there being no fingering of individual frames. But this result can not be achieved without a good tool; and the one that Mr. Davenport describes is the one that, according to my experience, is proving most satisfactory, all things considered. Early last fall we intended to list such a tool in our catalog, but we overlooked it; but we hope to have some ready very soon now.

Mr. Davenport seems to favor Hoffman frames with square edges. I tried the frame the first season with such edges; but after I had tried them with a plain V edge I decidedly preferred the latter; but I should like to see reports from those who have recently tested the two side by aide.

OUR HOMES,

BY A. I. ROOT.

For there shall arise false Christs and false prophets, and shall show great signs and wonders; insomuch that, if it were possible, they shall deceive the very elect.—MATT. 24 : 24.

In one sense Christian people ought to feel encouraged just at this present age from the fact that so many are holding, or at least claiming to hold, Christ Jesus as Lord of all. I can very well remember when the idea that Jesus could heal or would heal now as he did in olden time would have been ridiculed, not only by unbelievers but perhaps, also, by a large part of Christian people and church-members. Now not only Christian Science people but even patent-medicine men and venders of humbug apparatus for healing disease claim that they are in line with Bible teaching and divine healing as in olden times. I have called attention to the fact that bad, vicious, evil men succeed in getting money from sick people by making believe they can heal in answer to prayer or similar ways. The world is now flooded with so many claims in this direction that it has brought to my mind vividly the text I have quoted at the head of this talk. "False Christs" and "false prophets"—why, one is literally bewildered by the multitude of them; and the most perplexing feature of the whole business to me is that it seems as if there were gradations *all* along, bridging the way between genuine faith and downright hypocrisy. Our text tells us they shall show "great signs and wonders," and that they shall, if possible, "deceive the very elect." Well, if this is true then I need not feel greatly worried if they do perplex and bewilder my poor self. But, dear friends, I do believe that we may sift the chaff from the wheat, especially if we are standing close by and holding fast to the dear Savior's strong arm. It is with a hope and a prayer that I may pilot some poor soul out of the darkness and into the light that I undertake to talk with you this morning. Let me first submit a letter from a bee-keeper:

Friend Root:—I happen to know something about the case of Henry W. Imler, mentioned in the item on page 237 of GLEANINGS. I was at Zion Home the week he was healed It was Christmas week, 1897. I heard him say twice, publicly, the following, once on Saturday before the guests in the assembly room of Zion Home, and once on Sunday before the congregation in Zion Tabernacle:

"I came to Zion Home Monday morning with smoker's cancer, located on the back part of my jaw, and extending downward into the throat. It was as large around, and as long, as my thumb. I heard the teaching the same day. Dr. Dowie laid hands upon me in the afternoon. In the night I awoke strangling. There was something in my throat. I could not raise it, so I swallowed it. I felt for my cancer. It was gone. It had dropped out while I was sleeping, and I swallowed it. I am also healed of the tobacco habit of 56 years' standing, and of the morphine habit of 35 years' standing. I have no further desire to use them."

Mr. Imler was a merchant in Fremont, Ohio, and appeared to be a bright, resolute man, and appeared to know what he was talking about. Dr. Dowie makes no charges for his services. Mr. Imler was there only one week. He would pay $10 for his board and room. If he paid any thing more he did it of his own free will; so I think Dr. Dowie did not "line his pockets" very deeply.

I think Mr. Fletcher's estimate of not one in ten being healed is very low, when you consider that from 800 to 1000 will arise in an audience in Zion Tabernacle and testify to their healing.

You seem to be under the impression that Dr. Dowie prohibits the use of meats. He does not. You will find meat on his tables every day in the week. He draws the line on swine's flesh. If you read all the reports about him you will not know what to believe. If you want to know the truth about him I would advise you to go to Zion Home and see and hear for yourself.

May the Holy Spirit take away all prejudice, and lead you into all the truth. D. I. WAGAR.

Flat Rock, Mich., March 22.

Amen to your concluding sentence, friend W. Permit me to say to our readers that the above testimony comes from a bee-keeper, and without doubt he is an unbiased witness. It gives us light on the subject in many ways. First, Mr. Imler was a victim, not only of the tobacco habit,* but of the morphine habit also; and if the work at Zion's Tabernacle was the means of delivering him from the power of Satan on these two lines we may all rejoice and praise God for it, even if he did die soon after his return home. It is a thousand times better to die with faith in God than to live in bondage to such evil habits. A man in our town, who had reformed so many times that everybody had lost faith in him, finally took a decided stand and held to his religion. A year or more afterward he was at the point of death, and his friends hesitated to tell him; but instead of being frightened or even disturbed, he said in substance, "May the Lord be praised! If I die now I shall die an honest and temperate man, trusting in Christ Jesus; while if I were permitted to live longer I might after all fill a drunkard's grave." I have been informed from another source that Mr. Imler died the death of a Christian over a year *after* the healing.

Now, in indorsing the above please bear in mind, dear friends, that I do not mean to say Dr. Dowie makes no mistakes. He is human; and I presume that, if we were to undertake to show him up on his worst side, we might make quite a charge against him. But would either you or I stand such a test? If somebody should undertake to write up all of my mistakes and inconsistencies, and ingeniously arrange it, even if he confined himself to facts, it might make a very sad showing. Dr. Dowie has certainly been instrumental in delivering thousands from the dominion of stimulants, evil habits, drugs, and the foolish and useless dosing with stuff that does no good, even if it does no harm, and our nation owes him a vote of thanks for so much. I am glad he has succeeded in building that great tabernacle, and in getting that great following.

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* Mr. Imler not only stopped the use of tobacco, but, instead of disposing of the stock on hand, so that somebody else might use it, he made a public bonfire of it. See the following, which I clip from a recent number of *Leaves of Healing*, written by the Presbyterian minister of Fremont, O.:

Dr. John Alex Dowie, Chicago, Ill.

DEAR SIR:—Mr. Henry W. Imler, of our city, desires me to write you, and say that on yesterday he burned all the tobacco he had on hand in his store, of which fact I was a witness.

He has thus fulfilled his word of promise to you and to God.

Thus far he stands as a free man, not having touched tobacco or morphine since his return from Chicago.

He says he has no desire for either

He attributes his deliverance to the Lord Jesus Christ, to whom he ascribes the praise.

I have perfect confidence in Bro. Imler, and believe he is finally and forever done with tobacco and morphine, after a bondage of more than forty years. Yours truly,

Fremont, Ohio, Jan. 11, 1898. (Rev.) A. G. LANE.

After the above was written the following came to hand in a private letter:

> Dowie's literature has been mailed to me, filled with blasphemy, and condemning all Christians, and all creeds but Dowie's. Two wealthy neighbors of mine went to Chicago and placed themselves under Dowie. He soon ascertained their wealth, and requested that they give the greater part of it to the "cause" (Dowie). This caused the scales to fall from their eyes, and the mask from Dowie.

The above seems to give us a glimpse as to where the great sums of money needed to build Zion Tabernacle came from. Of course, there are different ways of looking at this matter. If those who have been helped by his teachings feel disposed, out of the gratitude of their hearts, to give him aid, surely no one should object; if, however, he is deluding and deceiving, and leading people away from established churches, then he should most certainly be shown up and exposed.

On page 595, Aug. 1, 1898, I made some extracts from a paper published in Little Rock, Ark. Another issue of a recent date is at hand from which I make the following extracts:

> Don't forget that the Spirit has fixed my terms for treatments at from one to ten dollars per month for each patient. These treatments are spoken in the silence every day for all manner of sickness of body and mind. I treat for success in business, love, and every thing you desire for health, happiness, and prosperity.
>
> I Am Christian Science; therefore, when Mrs. Eddy talks about Christian Science she is talking about *Me*. Before Mary Baker Eddy was, I Am. See?

Now, friends, one would hardly think it possible people would send money in response to such assertions, especially from a man who admits that he gets drunk when he feels like it, and thanks God for whisky, right out in his journal. Now please read the extracts below, from a kind letter I have just received:

> *Mr. Root:*—I have been thinking, ever since I read your opinion of Mr. T. J. Shelton, which appeared in GLEANINGS last summer, that I would write you a few lines giving you my opinion of him. I know you were sincere in what you said about him, and felt it to be your duty to warn people against him; but I know, and have personal evidence, that he can cure some diseases, if not *all*. I procured T. J. Shelton's address, and wrote him just what I wished to be treated for; and the very day he *received* my letter my trouble ceased. I have been, until within the past three years, a missionary Baptist; but since I have been earnestly studying Mental Science the Baptist doctrine looks unreasonable to me, as does all orthodox doctrine—not that I think there aren't good people in all churches — far from that. We *know* from reading your Home Talks, that you are trying to live a true Christian life. I hope this will be read with as kindly feelings as it is written. For fear you may feel insulted, and ridicule me, I sign myself A FRIEND.
>
> Roseville, Ill., Mar. 31.
>
> P. S.—I will send you a little book called "Finding the Christ in Ourselves" I hope you will enjoy reading it.

Now, then, the puzzle is, how can one who writes a letter like the above, and who seems to be downright honest and sincere, believe for a moment that this Shelton, with his intemperance and unblushing audacity, can heal diseases? Nay, further; he heals people hundreds of miles away, and the healing is done (without medicine or any thing else) as soon as he reads the letter describing the malady. When Jesus healed the nobleman's son by simply speaking the word, the people of that day were greatly astonished; but now we are told a wicked man succeeds in getting money for doing something more marvelous, and people believe in him. Before considering this matter further let us take still another case.

> *Mr. Root:*—I mail you a circular, issued by Dr. Carson, of Kansas City; and inclosed with this letter you will find a piece of tissue paper that I shall mention further on. I wish to inquire if you know any thing about Dr. Carson. Why I inquire is, a lady friend of mine has just taken what he calls a month's home treatment by him, and has received no benefit from it. She has been a great sufferer from paralysis for the last three years. She is discouraged, having tried so many things that have not helped her. She said she had tried Electropoise, and was about to try Oxydonor when she heard of Dr. Carson, and concluded to try him first. She could not well make the journey, so she wrote him her condition. He sent what he called a month's home treatment. It consisted of 28 pieces of paper like the one inclosed. The instructions were to keep them wrapped in cloth, away from light, until used, and they must not be handled or touched except by the patient. One piece was to be placed between the shoulders each night on retiring, and to be removed in the morning, and burned. I told her she had been doctoring with a lot of humbugs, and to prove it I got out GLEANINGS, that she might read your exposures of Electropoise and Oxydonor. You can imagine how she felt when she found where her hard-earned money had gone. She gave me one of the pieces of vitalized tissue paper to send you. It has not been used; so if it ever contained any healing properties it must retain them yet. I can not help feeling that he belongs to the humbug class. If not, may the Lord prosper him in his wonderful work.
>
> Helix, Cal., Mar. 14. J. B. RATCLIFFE.

You will notice in the above kind letter the writer seems to think it *may* be possible, judging from the concluding sentence, that this man has, after all, some means or power at his command, of giving some sort of virtue to a simple piece of tissue paper, so that it can be sent by mail, together with its medical properties, to the patient. The writer sent me a periodical, or a sort of health journal, published solely to puff this doctor's sanitarium. There was a picture of the doctor himself, and his palatial residence, where he cures people. He certainly looks as if *he* had been well fed; and the pictures of his study, reception-rooms, etc., indicate that the zero weather does not trouble him very much. He is getting rich, or is already rich, and who furnishes the money? Why, they are poor people, such as our friend describes. The lady sent for the Electropoise first; but when she was obliged to admit that it was of no use, and was on the eve of sending for *Oxydonor*, thinking it might be better, somebody advised her to send for the "vitalized" tissue paper. We do not know how much money the doctor had to have for these pieces of paper. The miracles described in the Bible are tame beside the claims of quack doctors of the present day; and the tales of the Arabian Nights are nowhere. Some of the doctors make a great parade, as you may notice in almost any paper you may pick up, of the fact that their medicines are sent absolutely *free of charge*. Some of them say loudly, "Do not send us any money; we do not want it." Ah! but they get it sooner or later, as you may easily find out by biting at their bait.

Now, is it the rich people who are making these doctors so wealthy? Is it the millionaires who contribute to help pay for advertisements costing hundreds of dollars that read, "Let us send you three large-sized bottles of our medicine absolutely free of charge?" No, it is *not* the rich people. It is the poor hard-working people of our land — men who toil day by day out on farms, and whose families are often in want — women who spend their lives, or a great part of them, over the wash-tub.

The mania for medicines to make people feel better is positively alarming. Not a week ago one of our customers, in a confidential letter, said his wife was employing *four* different doctors, and taking medicines *nine times a day;* and the consequence was, it took about all the money he could rake and scrape to pay the bills. Now, this is not an isolated case. Our periodicals — agricultural, scientific, and religious — would not be filled with glaring and preposterous advertisements unless there were money in it. One of the best periodicals that comes into my home, and a paper well up with the times, keeps an advertisement running, of glass casters to put under the legs of your bedstead, to prevent the electricity from running away while you are asleep. These glass casters are, of course, sent free of charge, on thirty days' trial. If you do not "feel better" after using them you may send them back, paying postage both ways. If you do feel better, the price is $2.00. Very likely *somebody* will put in right here, "Mr. Root, we have been using those glass casters several months, and we would sooner part with the clock or the cook-stove than with them." Then somebody will say, "Why, Bro. Root, how do you *know* that they do not do good? How does it come that you are so much wiser than the rest of us?" My dear friend, I do not claim to be wiser in all matters; but I have kept up with the inventions and improvements in electricity for about fifty years. Glass casters would not keep the electricity in the human body any more than they would keep the rain from falling on the roof of your house. Of course, it might be managed by an electrician so as to insulate your bed, and then the bed *might be* charged with electricity. But even if you went to all that trouble and expense it would do no more good than it would to keep the water from falling on your roof. Any student of natural philosophy, even if he is not more than ten years old, should be able to tell you this

Years ago a man came to me and commenced something in this way: "Mr. Root, you claim that there is a queen-bee in every hive" I told him I did not claim it, but that I knew it just as well as I knew my own horse was in my own barn. But he went on: "But if you will just listen to me a minute I think I can show you the thing is impossible."

I did not listen at all. I simply went to a hive and showed him the queen; and then he went away thinking, perhaps, I *knew* what I was talking about, after all.

The *greater part* of my readers, I am sure, are satisfied the pieces of tissue paper the doctor sent had neither sense nor science about them. It is all quackery and shameful hypocrisy; the same with Electropoise, the same with T. J. Shelton, who cures you of your troubles as soon as he has read your letter describing your symptoms. And yet all of these people have hosts of followers. I wonder that this whole business of "holding people up" on the street and demanding their money is not at an end. The highwayman's occupation should be wound up, for he can get more money, and do it far easier, by proclaiming himself a "Mental Science" healer, or something of that sort.

There is a great fact staring us in the face; in fact, it ought to stare *everybody* in the face who will read the advertising pages of the periodicals that fill our home papers. The fact is this: People *imagine* they are cured by Electropoise, tissue paper, or even by writing a letter to a low-lived swindler who does not furnish any thing whatever. They are *sure* they have been cured. They have such faith in the oily-tongued venders they give him money out of "gratitude"— at least I have heard they do sometimes. Now, if these people get well without taking *any medicine at all*, is it not probably true that thousands of people are buying medicines, investing their money and their faith, when, if the truth were known, the medicine has nothing whatever to do with the recovery? I am reading the advertisements in every paper I get hold of, and we have a great pile of exchanges, I assure you. I am reading, because I am feeling anxious about our American people. We have all sorts of organizations and schools. I do not know but there are a few whose office it is to teach people better, and to correct the superstition that seems so widespread in regard to the matter of remedies. Our school-teachers, I am sure, are competent to correct these foolish notions. Our family physicians are, as a rule, well aware of what I say. When I appeal to them they laugh about it, and say people prefer to listen to quacks, and send money in response to advertisements, rather than consult their next-door neighbor, who may be a doctor; and finally our ministers of the gospel — God's appointed servants to lead men from earth to heaven—*ought* to be able to advise wisely in regard to remedies. Some of them are doing this; but when I see the Electropoise people flaunting it before the world that they have testimonials from "*a hundred ministers of the gospel*," then I feel like groaning in discouragement.

In the letter from the friend who did not want to sign his name he tells us he used to be a "Baptist;" but after he got "healed" he dropped the church and his religion, and (he tells me further) lost his faith in God. Now, this would be to *me* one test of the genuineness of any of these new things. When the tendency is to lead people away from the church and from the Bible, the thing is surely of the Devil. In our opening text it says that great signs and wonders shall be shown. I am beginning to think that Satan is perhaps granted a little liberty in this direction, that he may by this means win people from godliness and righteousness and *temperance*. Why, dear friends, just think of it. Suppose a physician who treated you and won your gratitude by giving you relief from pain should say there was a good deal of prejudice against whisky. Suppose he should add, "I get drunk when I feel like it; I thank God for whisky; it has been my true and faithful friend for twenty years." If you had faith in him you would begin to try a little whisky yourself; and I hardly need add you would stop going to church, and quit reading your Bible. Let me ask our nameless friend who wrote me that kind letter how he reconciles the above expressions from T. J. Shelton — expressions that are right out in open print — with the kind words he has been saying about him; and yet this Shelton has been working hard to make it appear he is a good man. Why, what are we coming to when the prince of darkness walks right out in broad daylight, and tries to make it appear that he is spreading the gospel of Jesus Christ?

I do not find Electropoise or Oxydonor advertised *now* in any religious periodical. We find it, however, right along in many of our popular magazines. When I undertake to remonstrate with these magazines, the editors or the managers of the advertising departments seem astonished. If they do not say so in word they do in action, "Why, these men pay spot cash for their advertising space. Why should we reject their advertising, or why are we under any obligation to inquire whether the machine is scientific or not?" We have, however, quite a number of periodicals that refuse to receive medical advertisements of any kind. Furthermore, quite a few absolutely refuse to receive any advertisement if they have any reason to think there is any thing wrong or injurious about it in any shape or manner. Quite often my friends say to me, "Mr. Root, why do you concern yourself so much about these things? If people wish to be humbugged and swindled they will be in spite of you." But I tell you I can not be quiet, or rest easy, while this craze for robbing sick people continues to go on and flourish. If there is anybody in the world who should have careful, considerate, and honest treatment, it is the sick and suffering. If these land pirates wish to rob people who are strong and well, and have the money to spare, all right — let them go on. It makes my blood boil to see these swindles pushed among people who have been unfortunate, and who, perhaps, through the force of circumstances, have been kept in ignorance of the wiles and schemes of unprincipled men. Just a few days ago something that looked like a catalog was placed among our mail, addressed to Huber Root, our fifteen-year-old boy. He is a great reader, but his father almost always knows *what* the boy reads. This pamphlet was marked on the wrapper, "X-Rays" As Huber is reading every thing on electricity, I thought it was probably something relating to some new apparatus; but notwithstanding, I concluded I would slip it out of the wrapper. What do you think I found under that innocent-looking guise, X-Rays? Why, it was one of the vilest medical advertisements that I ever got hold of. I am going to put in a plea to have the department exclude it from the mails. It was about as bad a thing as I can imagine, and yet they called themselves "great doctors," and tried to make it appear they were *protecting* the young. Now, these villains are getting the names of schoolboys, and mailing them these pamphlets. Dear parents, are *you* in the habit of looking after what is sent to your children through the mails? and have your children been so brought up that they are willing (and glad) to have papa or mamma either look over the books and papers they read? Our prisons, our infirmaries, our lunatic and idiotic asylums, are *already* sufficiently populous. If you wish to make sure that no inmate of your own home shall ever get into these places, look after this matter. Look out for the medicine-venders, and be sure you are not deceived by some *wolf* that manages to get into your homes under the guise of *sheep's clothing*.

HIGH PRESSURE GARDENING

BY A. I. ROOT.

REPORT OF THE OHIO EXPERIMENT STATION ON NEW VARIETIES OF POTATOES DURING 1898.

We take the following from a recent bulletin:

> In 1897 the yield was uncommonly good, because both the weather and the soil were favorable, while in 1898 the conditions were quite the opposite, and in consequence the crop was only about one-third that of the previous year, and in some cases the difference was still greater.
>
> *Bovee.*—One of the best early white sorts that have been grown here for three years or more. The yield in 1897 was 350 bushels per acre, and the average for the two seasons was 236 bushels Its record has been good in previous seasons. It is about as early as Early Ohio, and far more prolific.
>
> *Early Trumbull.*—An excellent early white variety, which has been on trial two seasons. It has the distinction of standing first in point of yield of any early variety, and falls but little below the best of the late sorts. on an average for two seasons. In 1897 the yield was 462 bushels per acre, and the average for two years was 293 bushels. It is fairly a rival of Bovee.
>
> *Enormous.*—This ranks first in prolificacy of all varieties tested in the last two years. In 1897 the yield was at the rate of 508 bushels per acre, and the average for two seasons was 319 bushels. The tubers are white, of medium length, and not inclined to grow prongy. Season medium to late.

The same bulletin says further:

> SEED POTATOES: WHERE TO GET THEM, HOW TO CARE FOR THEM UNTIL PLANTING-TIME, AND WHEN TO PLANT.
>
> The importance of good, sound, unsprouted potatoes for seed is a matter concerning which there is no difference of opinion; but how to secure such seed is a question upon which all are not agreed.
>
> Some would send north each year for new stock, while others believe that the southern second-crop potatoes are superior to other seed, because of the fact that they do not sprout so quickly in the spring.
>
> It is sufficient to say, without going into details, that the Ohio Experiment Station has found that the locality where the seed was grown is a matter of less importance than the manner in which the seed is kept, which is equivalent to saying that the condition of the seed before planting determines what the crop is to be, far more than does the latitude where the seed was

produced. When equally well preserved from sprouting, our own seed potatoes have given as good results as those from either north or south. Cold storage Ohio seed potatoes have given as good crops as those from Maine or North Carolina.

Cold storage is not convenient for all, however, and means must be adopted to obviate the necessity of it. The easiest plan is to grow seed potatoes late in the season by planting about the first of July.

To carry out this plan, preparations need to be begun as early as the first of May. Ordinarily, potatoes will not keep in condition for planting until the first of July; but if they are taken from the cellar before they have begun to sprout, or when the sprouts are just starting, and spread out on the barn floor, or loft, or some place where they will receive a little light, they will throw out short, stubby, green sprouts, about half an inch in length, and then remain in that condition for months.

The potatoes must be only one layer deep, and, preferably, seed end up. All of the eyes will not throw out sprouts ; and in cutting, the pieces should be larger than for spring planting.

When planted, these potatoes will come up quickly and make their growth in a short time, and almost surely give a good crop.

In 1897 the Bovee gave, with the treatment above described, at the Station, 200 bushels per acre, and in 1898 the Enormous yielded 300 bushels per acre, which was better than the early crop. Late varieties do as well by this method of treatment as early sorts ; but usually the yield is less than from early planting.

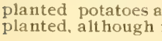
The object of this method of growing potatoes is to secure seed that will keep in a common cellar without sprouting, and for this purpose it is far superior to seed grown in the ordinary manner.

It may be said, also, that potatoes grown from sprouted seed are less scabby than those grown from seed taken from the cellar and planted at once. Late-planted potatoes are less liable to blight than early-planted, although not exempt from that disease.

Permit me to add that all the points made above agree exactly with my own experience and experiments. And now, friends, if our station, which is located on rather poor clay soil, can make such yields as those mentioned above, what in the world is the reason you and I can not do the same if we avail ourselves of information that is ours if we just reach out and take hold of it ?

COW PEAS; HOW TO MAKE A STACK SO THE PEAS WILL CURE AND KEEP SAFELY.

I wish to add something to what Abbott L Swinson says on page 240 in regard to making hay from cow peas. The speckled (or Whippoorwill) variety has the peculiarity of maturing most of its pods before the leaves begin to drop, and then it has a more erect habit; hence its great popularity for making hay. The curing is best done in open stacks made around poles set in the ground, and prepared thus: Get a piece of scantling 16 or 18 ft. long and 3x3 to 4x4. Cut some pieces from stuff 3x1, and from 18 to 24 in. long, in this shape—that is, sawn across at an angle. Now nail these pieces on the pole about a foot apart from the ground, going round in a spiral, and leaving the outer ends higher than the center. If the vines be stacked around these, either when just cut or afterward, they will dry out, and at the same time be well protected from rain.



Paris, Tenn. W. H. Greer.

As I understand it, the vines are to be hung on these projecting sharp points in such a way that the roots are up and the tops hang down. In this way the leaves will naturally assume the best shape to shed rain, and the pole and the projecting sticks will let air enough through the stack so there is no danger of heating. It strikes me that such an apparatus would be an excellent thing to stack common beans when grown for seed, especially when we have damp rainy weather making it difficult to dry them properly to thrash.

I am very glad to see the cow pea get a fair share of attention in Gleanings. I don't think it could properly be discussed among the bee and honey interests, but in the department devoted to *home* interests I think it is very appropriate. The cow peas were one of the great factors in enabling me to have a home. Some years ago I came by some land that was considered worthless, and it was so unproductive that it was abandoned. Ordinary grain and grass absolutely refused to grow on it, and the only plant I could start on it was the cow pea. After considerable work I prepared a shallow seed bed and applied a little dissolved S. C. rock and muriate of potash, about 200 lbs. of the former and 25 lbs. of the latter to the acre at a cost of $1.50 per acre, not including the labor. A large mass of vegetation developed on that field, all of which I turned under and started that soil on a career of usefulness from which I have annually taken a crop ever since, and paaying crops too, as, for example, two years ago 320 bushels of wheat from the 11 acres, and last year about 28 tons of the finest clover hay, red and alsike mixed, from the same field. Only after seeing what the cow pea will do for our worn or apparently worn-out soil can we begin to appreciate its value.

As a soiling crop, as a silage crop, as a hay crop, it is grand; but as a soil-renovating crop it stands second to but one, and has the advantage of being able to thrive on such barren soil where its peer, red clover, can not grow.

If any of the readers of Gleanings have light worn-out soil that will not take kindly to clover, and fail to produce profitable crops, feed it one good crop of cow peas, stimulate lightly with potash and phosphoric acid, and, my word for it, you will be astonished at the future results. Don't be afraid of being too far north, as the cow pea will grow during the warm season, but may not ripen seed. It will not thrive on wet, cold, undrained soil. L. W. Lighty.

East Berlin, Pa.

ENGLISH RAPE AS A HONEY-PLANT.

What do you know about English rape for bee forage ? I came across some on my second trip to Michigan last fall, that was showing well. I called on Dr. L. N. Higbee, near Elsie, an intelligent bee-keeper having about 60 colonies of bees. He had about ½ acre in bloom ; and although the weather was quite cool the bees were pouring in from it in a way that reminded me of the basswood flow earlier in the season. They were bringing in mostly pollen, which was an unusual sight so late in the season (October). Dr. H. reported a flow of honey in August, a few years ago, from 4 acres, that to me was almost past belief.

East Townsend, O. H. R. Boardman.

We are glad to get a favorable report from rape as a honey-plant, once more. Some years ago there was considerable of a stir about it. Some very large yields were reported, especially in localities where the seed was largely grown for oil. The seed was advertised in the bee-journals, and, in fact, we have it in our seed list (*English* rape is worth 20 cts. per pound) among the honey-plants. There seem to be several varieties, and one kind that would winter over in mild climates This latter was used largely for feed, and within a few years past the Dwarf Essex rape has eclipsed every other variety as a feed for sheep. This, however, is seldom grown as a honey-plant. Of course, where it is managed for growing the seed it would yield honey; but I have not yet learned where the seed of this latter variety is grown — probably somewhere in the South. Who can tell us more about it ? And, friend B., will you please tell us whether the patches you mention were grown for any other purpose than as a honey-plant ? And, by the way, old friend, I am glad to know you are getting enjoyment, and something profitable also, from your wheelrides. While reading your account of them I felt a great desire to go along with you, if I knew when you are going to start out again on a ride. By the way, why can't we have an excursion planned specially for bee-keepers who ride wheels?

SWEET CLOVER IN GERMANY.

Friend A. I.:—I send you a picture out of *Centralblatt* to show you how sweet clover grows in the German language. It was windy when the picture was taken, so the plants don't show as well as they might; but Herr Reepen says the average height of the stalks back of the man and boy is 9 ft. 10 inches, and the one stalk that Herr Wegener is holding in his hand is 10 ft. 8 in. high.

But what I wanted you more particularly to notice is the growth of the potatoes this side the man and boy. Those in the foreground, as you see, have made a poor growth, while the three rows next the sweet clover have grown most luxuriantly. And yet they were planted with the same seed and at the same time. Herr Reepen thinks the difference must come from the nitrogen gathered by the sweet clover. It seems as if there must have been some other difference, perhaps accidental, but still it may be worth while to make some experiment to see whether any thing like the same difference might be made in this country. I commend the case to your consideration.

Marengo, Ill. C. C. MILLER.

I should be exceedingly glad to submit to our readers the picture sent us. It looks to me as though the ranker and stronger growth of the potatoes close up to the sweet clover may be accounted for partly by the shade. If the soil was sandy or gravelly, the sun was likely too hot for them out in the open field; and this great mass of sweet clover would not only shade the potatoes, but if there was an abundance of rain it might also help to keep them damp longer than those standing out in the full blaze of the sun. I wish our German people would tell us through Dr. Miller, or in some other way, how much sweet clover is worth for feeding stock in the "Fatherland."

MANURIAL VALUE OF BEES, ETC.

Having kept bees for five years at my present location I have been led to notice the effect of dead bees as a benefit to vegetation. For instance, in front of my old hives, where for five seasons dead bees have accumulated, the grass grows with a luxuriance not noted anywhere else. Clean out a hive where bees have died, and dump the mass of dead bees in a spot, and note the result of increased fertility. My theory is this: My apiary adjoins the garden; and daily, during the working season, I find dead and disabled workers lying about on the ground. Now, a few bees every day dropped on the land is a small thing; yet in a few seasons it amounts to quite a large amount. Agricultural specialists agree that animal matter (decomposed) is a fine fertilizer; hence I concluded that bees in a few years are worth something to their owners as a result of the matter added to the ground from dead bees. I shall clean up several hives this season, and experiment by scattering the "corpses" in the drill along with the seed, side by side with other fertilizers, and report results.

Another thing, my chickens, when about six weeks old, eat drones, and seem to thrive on them—a "lean-meat diet," you might call it. What surprises me is the instinct that teaches young chicks to eat drones and let workers alone. They beat drone-traps badly.

Murfreesboro, Tenn. CHIP HENDERSON.

I have often thought, friend H., that there must be considerable fertility in the bees thrown out of a hive after they have died in wintering; and even if they do not die in wintering, if it is true that a worker-bee lasts only about six weeks, there is quite a lot of carcasses to go somewhere. Our plan of having a Concord grapevine to shade each hive utilizes this debris with very little labor. We have beautiful grapes by the ton year after year, with no expense except to prune the vines and tie them up once a year. They afford shade to the hives, and the bees furnish all the fertility needed.

GROWING STRAWBERRIES AND CORN TOGETHER.

I have given the subject a thorough trial, and have abandoned the system as a delusion and a snare. My first trial was exactly the same as Mr. Chapin's. Corn was planted about 3½ feet each way in hills, and one strawberry-plant set out between hills of corn in the row. The variety was Lenig's White; and the season being a good one I got a fair crop the following season. Subsequent trials proved comparative failures. I have tried growing early sweet corn between every other row of strawberries, and then again between every fourth and sixth row; and the further apart the corn was planted, the more the system condemned itself. When the strawberries had the field to themselves there was a good stand of strong vines; but always, without exception, the strawberry-rows adjoining the corn were feeble and stunted, showing that the corn had taken the larger share of plant-food and moisture. Our land being rich and high-priced (we live in the city) we have tried to get all we can out of it. I have tried beans, cabbage, beets, and onions, among my strawberries, and have now settled down to early cabbage, early beets, and onions, as being the only crops that can be grown among strawberry-plants without injury to the succeeding crop. These crops come off the ground early, and leave the moisture for the strawberry-plants in the fall, when it is most needed. Corn, on the contrary, needs all the season for maturing; and with its long feeding roots reaching out every way for plant food and water, the poor strawberry-plant has no show whatever. If our old friend A. I. Root will plant one row of strawberry-plants alongside a row of corn he will get the best object-lesson of how a strong plant can rob a weaker one.

I am entirely agreed with you as to the value of cornstalks for a mulching for strawberries; but I want them grown by themselves, not nearer than 20 feet of the strawberries. Cornstalks between the strawberry-rows, and 2 inches of clean rye straw over all, is my ideal of a perfect mulch. H. E. MCGREGOR.

Appleton, Wis.

Friend Root:—In regard to what you say in March 1st GLEANINGS about planting corn with strawberries to shade them, I most emphatically say, *don't.* Corn is such a rank grower, especially on ground good enough for strawberries, that the roots would absorb more moisture than the shade of the stalks would prevent evaporating. I have tried it, and *know.*

Belleville, Ill. E. T. FLANAGAN.

THE CRAIG POTATO; A FAVORABLE REPORT FROM IT.

I like the Craig potato for late the best of any variety I have yet tried, and I have tried a good many of them. I have been able to get a fair crop of them when (because of dry weather) many other varieties failed entirely. I started with 3 lbs., and in four seasons the increase amounted to between 600 and 700 bushels, or an average increase of over 50 fold; and that too, without any fertilizers or special culture.

Mitchellville, Ia., Mar. 26. G. S. FOX.

The above is exactly the way the Craig behaves on our grounds year after year; and it is a mystery to me why so many should fail in making a success of it. I suppose we shall have to conclude that, like many other things in the vegetable kingdom, it succeeds nicely in some localities and not in others.

THE NEW SPRAY-PUMP FOR KEEPING FLIES OFF HORSES AND CATTLE.

On page 288 you ask for information regarding the use of kerosene spray on cattle, to keep off flies. Last year, seeing on sale at one of our stores the Acme atomizer, and thinking it would be handy for me to spray my hand-fertilized potatoes, I bought one and found it very convenient for that purpose. By keeping it loaded I could go over my few short rows every morning to make sure the bugs would not destroy the buds or blossoms before the seed-balls were set. Of course, for this I used Paris green I also used the atomizer with *clear* kerosene oil for spraying cabbage, with good results. One day, noticing that the flies were tormenting my calves, I thought to try the kerosene spray on them. I found it worked charmingly, as no flies would remain on the calves to annoy them, after which we sprayed them every morning.

The men, noticing the good effect of the spray on the calves, tried it on the cows just before milking, with equally good results. I found it would last all day on the calves if one-fourth sweet or lard oil was added to the kerosene. I am using the sprayer with clear kerosene on my orchard, to kill the oyster-shell bark-lice that are now hatching. This year I shall buy an atomizer for each kind of mixture, to avoid the trouble of so many changes. They are so cheap one can afford to have all he wants. A. E. Manum.

Bristol, Vt., Apr. 5.

I used last season a sprayer something like the Faultless, but I had to blow into the tube. I put kerosene oil into it, and sprayed my cow before I commenced to milk, when flies were so troublesome. Every fly is dead instanter. I know of several who used them, and they say they are just grand for that. It takes but the least bit of oil each time. Just fill it part full, and have it handy where you milk. It will save time, possibly some strong language, and the milk-pails will be better filled. It is like oil on the troubled waters. A. A. Harrison.

McLane, Pa., Jan. 25.

My impression is, at the present writing, that the little low-priced machines are going to be more used for the above purpose than for destroying potato-bugs. Flies on domestic farm animals not only annoy the animals themselves as well as the driver, but they actually cost thousands of dollars in hard cash, sometimes resulting in accidents that end in the loss of life. If one of these cheap sprayers with a little common coal oil will do the work, thousands can afford to keep them for this purpose and nothing else, even if the application is to be made every morning before starting out. The cheap tin ones will be all right for kerosene.

THE WEATHER ALMANACS AND THE ZERO WEATHER IN FEBRUARY.

On page 195, March 1, I suggested that here was a chance for the almanac-makers to immortalize themselves, if they had any glimpse ahead of the terrible cold spell in February. There has been just a faint attempt to make out that "one of the prophets" did tell us what was coming in February. Of course, there is a good deal said about storms and blizzards; but the prediction would fit any February very well. Had the prediction been that the middle of February would be all over the United States more zero weather than had been known for years, and, in fact, that zero had gone down into the Southern States, where it was seldom if ever known before, then we might have a little faith, and so on through the rest of the winter months. If any record was made last fall to the effect that December would be unusually severe, especially during the fore part, all over the land, and that January and March would change places, and that the middle of February would be remembered for years to come, from Canada to Florida, then we might have had some reason to believe in "inspiration" in regard to the weather. The severe period in February was somewhere from the 8th to the 16th. Below is a clipping from the most popular weather almanac concerning this period:

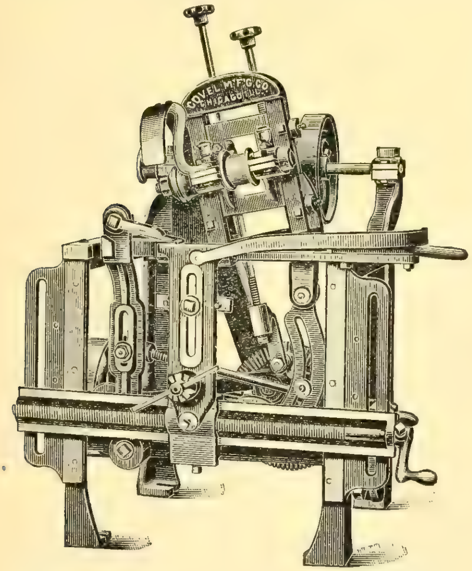
A marked storm period runs from the 8th to the 12th, in which a Venus equinox will be at the center of its p wer. Very warm days will be followed by rain and thunder, turning to snow, blizzards, and a cold wave. About the 14th to 16th, cold wil. moderate, and more storms of rain and snow will occur, followed again by change to much colder.

Now, wouldn't the above fit very well for almost any February? and does it hit at all what actually occurred all over the United States last February? The closing prediction for the month is, "Watch your stock; many will perish;" and because many did perish, we are called upon to note the wonderful accuracy, etc. But this same thing has been said in regard to stock for every February and March for years past; and it is not *at all* wonderful that it came true every time.

SHARPENING SAWS BY MACHINERY; THE INERTIA OF HUMANITY.

Every progressive man and woman has felt that peculiar pain that comes to one who is trying to help people who will not be helped. We find this not only in spiritual and moral things, but all through life, and even into the mechanical world. More than 20 years ago I was fully satisfied that sharpening saws by hand was a clumsy and wasteful way of doing the work. It was when I first began to make bee-hives; and circular saws sharpened *just right* were beginning to be much in demand. I got an emery wheel made specially for the work, and rigged up a machine of wood, and this machine sharpened the saw without the use of any file whatever, so that it did prettier work, and did the cutting with less power than any saw I had ever before used. The reason was, the teeth were exactly alike, and ground at just the right angle, with the right amount of "throat" to let the dust out, etc. I got my ideas of how it should be done from Disston's book on saw-filing. My machine was crude, and soon got out of adjustment; and after I had spent considerable time I decided that a *better* machine was needed, made all of metal.

Soon afterward, at the Centennial Exposition, at Philadelphia, I saw a machine made for that very purpose; so you see my first experiments in this line were about 23 years ago. Some time afterward we purchased one of these machines, but it did not work satisfactorily. The inventors explained that they had gotten out a better one, and we swapped, paying the difference. But all these machines seemed to have defects. I sometimes thought *I* could make any of them work, because my heart was in it; but different men in our saw-filing department sooner or later dropped the machine, and went back to hand work. In spite of all I could say or do (or at least it seemed so to me) our men would always persist in cutting down the outside (or top) of the saw-tooth, instead of doing their filing on the *under* side. If the regular saw-filer was sick or away, the new man was sure to file down the points of the teeth the first thing he did. Now, the *point* of the tooth is what does the work. If it needs to be made sharper, cut away the steel on the under side, but *never* on top. The people I talked to assented to the theory; but the first time I came along they were bearing down right on the top of the tooth again, and cutting away the point, wasting the saw, wasting their strength, and not having a good cutting tooth when they were done. Well, to day my heart has been made happy by seeing a saw sharpened on a new machine, without the aid of any file at all, and the saw cuts just as nicely as the one I worked with *23 years ago*, sharpened on my home-made wooden machine. Saws sharpened by machinery have their teeth exactly alike; and if you once set the machine so it makes one tooth of the proper shape and pitch, all the other teeth will be just like it, and you can sharpen a hundred or a thousand, and have each and every one cut just as well as the first one This new automatic machine cost us about $75, and was made by the Covell Mfg. Co., Chicago. I have always maintained, and still maintain, that, even if one insists on filing saws by hand, he needs a machine to do the gumming and truing-up. Just take a look at a lot of saws that have been sharpened with files a dozen times or more, and then compare them with one that has been through the machine. But even now I am afraid that, in a few days, I shall hear somebody say the machine is "no good," and hear that they have gone back to bungling hand work.



AUTOMATIC MACHINE FOR FILING SMALL CIRCULAR SAWS.

The same apparatus, with a little modification, trues up and sharpens band-saws in the same way; and as it is a considerable task to sharpen a long band-saw, such a machine is a wonderful saver of hand work. We now have two of these machines in operation. One saw-filer can superintend both of them, and be doing other work besides. The band-saw will, in fact, take care of itself for almost an hour at a time, and do nicer work than any man ever did by hand with the file—at least that is my opinion. A one-horse-power electric motor operates both machines.

Our Roll of Honor.

Dear Brother Root:—I notice, in looking over the Honor Roll, that you give a place to those who have taken GLEANINGS since 1880 and thereabouts. When the Honor Roll was first started, I did not consider that those subscribing for so short a time would be counted among the veterans. But if they are, I feel that I am entitled to a place, having been a subscriber since 1879. I might say that I have all the copies since that date in my possession now. I have written you from time to time telling you of the help GLEANINGS has been to me. It would be hard to estimate how much benefit I have derived from your advice and counsel in the Home Papers. We had the pleasure of a visit from you at our home a short time ago, and we hope that you will come to Toronto soon again, when we shall be much pleased to have you stay with us.

I have been much interested in your travels, and intend sending you a sketch of a trip we had to Muskoka last summer. We know from what you have said in your talks about health, soft water, etc, that Muskoka would be just the place for you. We believe you would enjoy it and that it would do you good. We traveled about two hundred miles on our bicycles, and about the same distance by canoe up the lakes and rivers, camping out all the time. We had plenty of fresh fish, backberries, raspberries, huckleberries, and the very best pure soft water. We were away a month, and the total cost for three of us did not exceed $50.00 EDWIN GRAINGER.

Toronto, March 13, 1899.

To be sure, I should enjoy it, friend G.; and whenever you get ready for another trip of that kind, just send me word and I will try hard to be one of the crowd. Well do I remember my pleasant but altogether too brief visit at your place. I was on the beefsteak diet then; but, may the Lord be praised, I think I could eat berries and fruit now with almost any of you.

My dear old Friend:—Please have my subscription extended. That's because I began with Vol. I. No. 1 of GLEANINGS. I think it began not so very long after the first visit I made to you. That was not long after you had had a fire, in 1870, and had your jeweler shop and dwelling all under one roof. Other company was there, somewhat crowding the sleeping facilities; you and I slept together, and you kept me awake detailing a plan that was in your head for putting a hive under each hard-maple tree, tapping the tree, and having the sap run directly into the hive for the benefit of the bees. You didn't manufacture smokers then, and I showed you how to smoke bees with a pan of hot coals. You liked the plan, and as soon as I was out of sight you tried it and burned up a hive, or tried to. I think I've slept with you a number of times since, and was distinctly the gainer on at least two separate occasions, when you absent-mindedly put your nightcap in my overcoat pocket instead of your own. I never lost any thing by sleeping with you I always put my Waterbury under my pillow. Please don't forget to have my subscription extended.

Marengo, Ill., March 23. C. C. MILLER.

I have been a continuous subscriber to GLEANINGS for about 20 years. I have preserved all of the volumes, but have not taken time to look up just what year my time began. I became interested in bees about 1879. My bees have wintered fairly well up to this time on their summer stands. JOHN S. SNEARLY.

Williamsville, N. Y., March 20.

I commenced taking GLEANINGS in the 70's, and have continually perused its contents ever since with interest, pleasure, and profit: and I know I am a better Christian to-day, and love the Bible better for the truths taught and practiced in GLEANINGS. Hoping we shall meet in the city of gold, I am your brother,

DuQuoin, Ill., March 9. F. H. KENNEDY.

Forewarned is Forearmed.

DO NOT WAIT until the last moment to order your supplies.

YOU MAY BE DISAPPOINTED by delay in shipment and lose a portion of the honey harvest.

SAVE MONEY AND GAIN HONEY by sending us your estimate NOW.

We are offering SPECIAL INDUCEMENTS FOR EARLY ORDERS.

Our 1899 CATALOG FREE.

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L. C. Woodman, Grand Rapids, Mich.

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POUDER'S HONEY-JARS,
and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

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Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

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Honey and Beeswax.

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Wholesale Dealers and Commission Merchants.
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You would not think it just the proper thing to select a farm wagon for park driving, and it would be eqally inappropriate to use a trotting wagon for knocking about over rough country roads with a heavy load.

We believe in the "eternal fitness of things," so our designers and mechanical experts have produced a special light roadster, (styles 64 65), adapted for the use of discriminating riders who want a mount affording the maximum of satisfaction and safety with a minimum of weight.

This bicycle weighs 21-22 lbs., depending on equipment, and every fraction of an ounce that does not make for safety, has been taken off.

Tire equipment is our new Burwell detachable—the nearest approach to perfection in bicycle tires; more resilient than others; perfectly dependable; you can repair it yourself; no tools required.

The bearings are Mr. Burwell's new Ball and Roller system—dust-proof and self-oiling; under test show a great saving of power and are practically indestructible.

Style 65 in this model is especially recommended for delicate women who tire of riding a heavy wheel.

We would like to tell you more about these and other Cleveland—recognized as ***Standard for Excellence*** the world over. Send for catalog 14

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BRANCH HOUSES—New York, 337 Broadway; Philadelphia, 830 Arch St.; Chicago, 307-309 Wabash Ave.; Boston, 396 Boylston St.; Buffalo, 615 Main St.; Detroit, 244 Griswold St.; San Francisco, 304-306 McAllister St.; Toronto Junction, Ont.; London W., 24 Orchard St., Oxford St.; Paris, 6 Place de la Madeleine; Hamburg, Neuerwall 36.

CLEVELAND BICYCLES

The Bee-keepers'

REVIEW

For January shows, as its frontispiece, a picture of the only section-factory in Michigan, and describes every process of section-making, from the tree to the crated product. It tells how to get every last speck of wax out of the slum-gum in a very simple way. The editor tells what he learned about foul-brood germs while in the laboratory of a chemist in Guelph, Ontario.

The REVIEW for February illustrates and describes a section case in which the sections are supported by the separators. C. Davenport tells when and how to remove bees from the cellar, and where to put them when they are out. J. E. Crane discusses the advisability of selling sections by count. The Extracted Department is really a symposium on the size of hives, with a two page editorial summing-up at the end.

The frontispiece of the March REVIEW shows the apiary and residence of Mr. T. F. Bingham—he of smoker fame. Mr. Bingham has an article telling how to keep bees good-natured. Messrs. Getaz and Stachelhausen and the editor discuss hives, locality, and management, and show that all three must be considered if success is to crown our efforts. Dr. Mason begins in this issue his department of "Good Things from Other Journals."

The frontispiece for April shows 16 sections of honey illustrative of the Colorado System of grading; and Mr. F. L. Thompson follows with a four-page article on grading and marketing. Mr. Beckwith tells how to get drawn comb for starters, and enumerates their advantages. Mr. McEvoy describes and illustrates the Alpaugh solar wax-extractor, which is peculiarly adapted for the melting of cappings and the purifying of wax. Mr. Davenport describes an improved process of rendering wax by boiling, and points out the great importance that attaches to the kind of material from which the sack is made in which the combs are boiled. Mr. R. L. Taylor considers the use of queen-traps and the control of increase.

Send ten cents for three late but different issues of the REVIEW, and the ten cents may apply on any subscription sent in during the year. A coupon will be sent entitling you to the REVIEW for ninety cents.

W. Z. Hutchinson, = Flint, Mich.

Eastern Bee-keepers.

If You are in Need of

APIARIAN SUPPLIES

send for our illustrated catalog describing every thing a bee-keeper uses. We keep the most popular goods, and sell them at prices that are right.

Italian Queens.

We own two apiaries, and our bees are "hustlers" for honey. "All yellow."

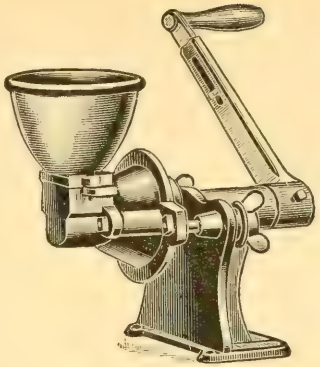
Untested Queens, 70c; 3 for $1.80; 6 for $3.00.
Tested queens, $1.25.

I. J. STRINGHAM,
105 PARK PLACE, - - NEW YORK.

NOTICE.

I herewith cancel all offers to furnish the *Modern Farmer and Busy Bee.* It has passed beyond my control. Forced out because I objected to a certain class of advertisements It will no longer *represent bee-keepers.* Better take and patronize a paper which will not carry ads. that are objectionable.

EMERSON T. ABBOTT, St. Joseph, Mo.



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Be your own Miller....

Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nut-meal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**

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In writing, mention Gleanings.

Two Wagons at One Price.

It is a matter of great convenience and a saving of labor for a farmer to have a low, handy wagon. They save more than half the labor of loading in hauling manure, hay, grain, corn fodder, wood, stones, etc. The man who already has a wagon may have one of the low handy wagons at the small additional cost for a set of wheels. These Electric Steel Wheels, with either direct or stagger spokes, with broad-faced tire, are made to fit any axle. You can convert your old wagon to a low, handy wagon in a few moments' time. You thus virtually have two wagons at one price. Write to the Electric Wheel Co., Box 95, Quincy, Illinois, for their catalog, which fully explains about these and their Electric Handy Wagons, Electric Feed-cookers, etc.

Don't Buy Supplies

For 1899 until you see my 39th annual catalog. A full line of hives and fixtures best adapted to our New England climate. Also best brands of **Comb Foundation and Section-boxes.** I have also made arrangements to keep quite a general stock of

The A. I. Root Co.'s Goods, at their Prices.

Parties desiring these goods can get them of me, and **save freight charges.** Bees, Queens, and Nucleus Colonies from the **very best strains** in America. A 40-page illustrated catalog free. Address

W. W. CARY, Lyonsville, Mass.

Albino Queens. If you want the most prolific queens, if you want the gentlest bees, if you want the best honey-gatherers you ever saw, try my Albinos. Untested queens in April, $1. Tested, $1.50.

J. D. GIVENS, Lisbon, Texas.

GLEANINGS

in Bee Culture

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GLEANINGS and your choice of the following papers one year.

American Agriculturist with Farmer's Almanac.
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GLEANINGS and your choice of the following papers one year.

Practical Farmer, Prairie Farmer, Michigan Farmer, Ohio Farmer.

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One Dollar and Thirty Cents.

GLEANINGS and National Stockman and Farmer one year.

One Dollar and Fifty Cents.

GLEANINGS and Cosmopolitan or McClure's Magazine one year.

GLEANINGS one year, and one untested Italian queen, for $1.00 only. We begin mailing these queens in June, and orders are filled in rotation, so the sooner your order comes, the earlier you will get the queen.

GLEANINGS one year, and No. 1 Repairing Outfit. Price of this combination only $1.75. We can ship these outfits from Syracuse, N. Y., Mechanic Falls, Me., Medina, O., or Des Moines, Iowa, so the freight will be low.

GLEANINGS one year, and Mantel Clock, both for $4.50. Can ship clocks from Cleveland or New York city.

Last of all, if you don't want any of these clubbing offers, send us 50 cents for Gleanings the remainder of the year.

DO YOU WANT EARLY QUEENS?

We can supply you with the choicest of Tested Italian Queens for $1.00 each. Orders filled by return mail Safe arrival and satisfaction guaranteed.

SEND FOR PRICE LIST.

J. W. K. SHAW & CO., - LO EAUVILLE, LA

QUEENS. Either five-banded golden or from imported Italian mothers. A few breeders at $2.00 each; tested, $1.00, or 6 for $5.00; untested, 75c, or 6 for $4.00. B. P. Rock eggs 75c for 13. **CHAS. H. THIES, Steeleville, Ill.**

Sweet-Potato Seed.

Many varieties. Best of the old and the new. Write for Prices and Circulars.

ADDRESS

L. H. Mahan, Box 143, Terre Haute, Indiana.

PEACH TREES 4 to 6 ft. at 3½ cts.; 3 to 4 ft. at 2½ cts.; all one year from bud; healthy and thrifty; no scale. Official certificate accompanies each shipment. Sample by express if wanted. Can ship any time. Trees kept dormant till May 10. **R. S Johnston, Box 43 Stockley, Del.**

SEND FOR MY PRICE LIST of high-grade strawberry and blackberry plants. Special prices on berry baskets and crates.

H. H. AULTFATHER, Minerva, O.

Eggs for Hatching.

Barred Plymouth Rocks, Thompson strain; Buff Leghorns, Arnold strain; Black Minorcas, Northup strain. Eggs, $1.00 per 13; $2.00 per 30. Circulars free.

CHAS. H. RUE, Minerva, Ohio.

BOOM BUSINESS!

Don't be satisfied with poor results, You can **hatch thousands** of chickens with the

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without a possibility of failure. That is best attested by its 200 first premiums in all kinds of competitions with all kinds of machines. Get our 168-page catalogue with supplement.

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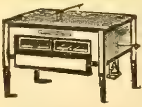

and send them our Incubator on trial. No man should buy an incubator and pay for it before giving it a trial. You **pay not a cent** for ours until you have given it a thorough trial. **It's made so that nobody can fail with it.** A child can run it with 5 minutes attention daily. It **beat** all others at **World's Fair, Nashville and Omaha Expositions.** The best **catalogue** and **treatise on incubation** published, sent for **5 cts.** Plans for Brooders, Poultry Houses, etc., sent upon receipt of **25 cts.**

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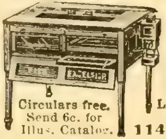

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Send 6c. for
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BY STEAM—with the simple, perfect, self-regulating

EXCELSIOR INCUBATOR

Thousands in successful operation.
Lowest priced 1st-class hatcher made.

GEO. H. STAHL,
114 to 122 S. 6th St., Quincy, Ill.

In writing, mention Gleanings.

SPECIAL NOTICES BY BUSINESS MANAGER

Since the advertisement of the *Modern Farmer and Busy Bee* was printed on the cover of this journal, we have received notice from Mr. Abbott that he had severed his connection with that paper, the reasons for which are stated in another advertisement in this issue (page 331). Mr. Abbott, it seems, does not believe in the principle of accepting questionable advertising; and if we understand it he preferred to sacrifice his business relations rather than his principles. All honor to Mr. Abbott.

BEE-KEEPING FOR BEGINNERS.

The above is the title of a book of over 100 pages, by Dr. J. P. H. Brown, of Augusta, Ga. We have eleven copies of this on hand. The regular price is 50 cts. To close them out we offer them at 35 cts. postpaid.

RECORD TIGHT SEAL-COVER PAILS.

Owing to heavy advances in tin plate we are obliged to advance the price of Record's tight seal-cover pails, as listed on page 25 of our catalog, $1.00 per 100 right through for all sizes, with a similar advance for smaller quantities. All other honey-packages, for the present at least, remain at present prices.

PLENTY OF NO. 2 SECTIONS.

We reported a month ago that we were short of No. 2 grade of sections in all sizes and styles. We have been filling some very heavy orders since, which took No. 1 grade almost exclusively, and we have accumulated a surplus of No. 2 in most widths and styles, so that we can now supply this grade, with very few exceptions. The one width we are still short of is 4¼ by 7 to foot, but we have plenty of all other common widths in two and four beeway and plain.

THIN-BASE FOUNDATION.

In order to encourage a wider introduction of the new thin-base foundation we decided to reduce the price to 75 cts. per pound, retail. There is nothing in it to us at this price till we have increased facilities for producing it more cheaply; but it is really cheaper to use than ordinary thin or extra thin foundation at so reasonable a price. Our facilities for making it are limited, and we may not be able to supply the demand a little later. For the present we can furnish all that is required. Order while you can get it.

SECTIONS 500 IN A PACKAGE.

It has been our custom for many years back to put 1000 sections in a package unless ordered in packages of 500 each. The 500 package is so much in demand, especially among dealers and agents, and it was so much of an annoyance to keep both sizes of package in the various sizes and widths, that we have adopted the 500 package as our standard size hereafter; and all sections from now on will be so boxed. Of course, we have a stock of some sizes in 1000 boxes which will not be used up for some time, but these will gradually work off.

BUSINESS AT THIS DATE.

The very late spring in almost all sections of the country, on the top of heavy winter losses, has had the effect of greatly retarding orders, so that we are now filling almost all orders promptly in from one day to a week after receiving them. Our accumulation of carload orders is worked down to five or six, the number we have been shipping each week for some time back. We are very much gratified to be in position to handle orders promptly instead of being hopelessly behind, as we were a year ago at this time.

We are now running on ten hours time except the section machinery, which we continue to run eleven hours while we are completing some heavy orders. Send on your orders and let us show you how promptly we can serve you.

Both our Syracuse and Mechanic Falls branches have had a much heavier trade so far this season than any heretofore, while we have shipped 25 more carloads than we had up to the same date last year, although we have not shipped so much in less than carload orders as last year.

Special Notices by A. I. Root.

EARLY CABBAGE-PLANTS; H. A. MARCH'S STRAIN OF EXTRA-EARLY JERSEY WAKEFIELD.

We have a splendid lot of them that will be ready to send out by the time this reaches you, or a little later. Prices: 10, 5 cts.; 100, 40 cts.; 1000, $3.00. If wanted by mail, 5 cts. for 10, 25 cts. per 100 extra. These prices may be a little higher than those offered elsewhere; but ours are all transplanted, well rooted, and every plant is from the celebrated seed grown by H. A. March.

SEED POTATOES FOR RAISING PLANTS, AND SWEET-POTATO PLANTS.

In our last I must have been "rattled," perhaps from the frosts and blizzards, when I said sweet potatoes for bedding would be ready in May. It should have been *April*, and the plants will be ready in May. We are now ready to ship potatoes by the first mail, express, or freight, and expect to have plants ready by the fore part of May. We have settled down on only two varieties—the old standard Yellow Jersey and the new vineless General Grant. Please notice that everybody who buys 50 cts. worth or more of either potatoes or plants can have the little book, "Forty Years' Experience with Sweet Potatoes."

SEED POTATOES AT THE PRESENT DATE.

Seconds are practically all gone except Freeman and New Queen, and firsts are practically all gone except Triumph, Freeman, New Queen, Monroe Seedling, Rural New-Yorker, Carman Nos. 1 and 3, State of Maine, Manum's Enormous. All the above will be sold at catalog prices. If you haven't a catalog, drop us a postal. Our Early Ohio was one of the first to be sold out, as usual; but we succeeded in finding a few that belonged to a man who bought the seed of us last season, which we offer at the regular price while they last. By the way, notwithstanding the multitude of varieties of new potatoes, it looks as if *more* people *still* prefer the Early Ohio than any other early potato known. Wouldn't it be a good idea for somebody to have a good lot on hand, say when another spring opens?

SIR WALTER RALEIGH SEED POTATOES.

We have about 20 bushels of these that we can ship promptly at $1.25 per bushel or $3.50 per barrel. They are something like the Rural New-Yorker and the Carmans, but are considered rather handsomer, and better yielders, than any of the above.

LITTLE BASSWOOD-TREES.

Now is the time for putting them out, and we have a nice stock which we can ship promptly by mail at the following prices: One foot and under, 5 cts.; 10 trees, 30 cts.: 100, $2.00. The same by mail, postpaid, one tree, 8 cts.; 10, 35 cts.; 100, $2.25. By express not prepaid, one to five feet, 10 cts. each; 10, 75 cts.; 100, $5.00. Of course, it will take some time to grow trees that will yield a very large amount of honey. But the basswood is a very rapid grower. It is a most beautiful shade-tree; and if you do not get honey from them, very likely your children will. The largest yield I have ever known from a single colony during a single day was during basswood time, and I believe that is the universal experience wherever basswood grows. As it is being so rapidly taken from the forests for timber and for different purposes, bee-keepers should look to it that more trees are being planted.

We have basswood seed for sale; but as it is a difficult to get it to grow I would advise people generally to buy the little trees. These are almost sure, with any sort of chance, while it takes an experienced man to manage the seed so as to get any reasonable amount of them to grow.

Advertisers' Department of Short Write-ups.

The Storrs & Harrison Co., Painesville, O.

We are constantly receiving inquiries as to where our friends had better buy nursery stock, ornamental shrubs, etc. A year ago last fall I paid a visit to Storrs & Harrison, and wrote them up, as you may remember. The way they do things with their systematized business and trained help, there is very little chance for mistake. Another thing, their prices are very much lower than what tree-peddlers often charge for spurious or doubtful stock. Our experiment station has recently warned the public against paying 50 cents apiece for a new-fangled peach-tree that is proof against the yellows, and will not winter-kill, etc. Now, Storrs & Harrison have the finest looking peach-trees I ever saw in my life, and almost any standard variety, including the very latest, for only about 10 cents apiece. We have made purchases of them more or less every year for about 20 years past, and when our stuff comes to bearing it is always all right. A. I. Root.

A Saving of $600,000,000.

All those of our readers who are interested in any species of legislation looking toward improvement of the public highways will find food for reflection in what follows:

It is estimated that the public roads of the United States aggregate 1,500,000 miles in length. The estimates of Gen. Roy Stone, of the U. S. Department of Agriculture, places the total wagon transportation at approximately 500,000,000 tons The average distance of haul is placed at eight miles, and the average cost of transporting one ton that distance is assumed to be $2.00. This makes the total yearly cost of wagon-freighting a round billion of dollars. All this is assuming that the roads of the country are in their present unimproved condition. Should the roads be put in first-class condition, and brought to something like the state of perfection we find them in foreign countries, this same ton of freight could be transported the same distance for only 80 cents. This effect is obtained in part by the broad tired "Electric Steel Wheels" made by the Electric Wheel Co., Quincy, Ill.

CONVENTION NOTICES.

The Northern Illinois Bee-keepers' Association will hold two sessions of its spring meeting—one at Mr. John Wagner's, near Buena Vista Stephenson Co., under the supervision of the vice-president, and one at Mr. Oliver Taylor's, at Harlem, Winnebago Co., under the president, on Tuesday, May 16, 1899 Everyone is cordially invited. B. Kennedy, Sec.
New Milford, Ill.

25c for one year's subscription for the brightest, newest, and best Musical Journal in the U. S. Five pages new and original songs and music in each number. Sample copy **FREE.**
The Smith & White Co., Cleveland, O.
In writing, mention Gleanings.

For Sale. Seventy-five colonies of bees on eight-frame Langstroth and Heddon hives at $3.00 each. Also a quantity of hives, combs, supers, and section-supers.
F. R. Davenport, Box 383, Kalamazoo, Mich.

EARLY QUEENS now ready, $1 00; six for $4.50. After April 15, 75c; six for $4 25; 12 for $8.00. May, six for $3.75; dozen for $7.25 Warranted; safe arrival guaranteed. Two yards. Big stock of fine queens carefully reared by Doolittle's method. Free circular. **J. B. CASE, Port Orange, Fla.**

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of faultless 5-banded workers. Breeding queens always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1 00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.
W. H. LAWS, Lavaca, Seb. Co., Ark.

Dovetailed Hives,
Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.
J. M. JENKINS, Wetumpka, Ala.

The King Windmills
For power or pumping, the best in the World. Send for circular and prices.
C. O. Weidman, Medina, O.

Root's - Household - Outfits

- OF -

Useful Articles at Half Price.

The name "Root" has long been identified with repairing outfits. The same name will now be attached to two outfits of useful household articles. In disposing of our department counter store we found on our hands a large list of useful articles. To close these out promptly we propose to sell them in outfits, making a complete set or sets at less than half their original price. In other words, we shall offer $5.00 worth of goods (85 different articles) for $2.00, and a $2.00 lot of goods (50 different articles) for $1 00. These goods are all brand-new, and just as we represent them. In order to get full outfits, order early before some of the stock is exhausted. We will sell these with other goods, to go by freight or express.

No. 1 Outfit, 85 articles, Listed at $5.00; Our Price, to Close Out, $2.00.

1 Long handled Ladle	05
3 8½-inch crimp Pie tins	09
3 6 inch crimp Pie tins	09
3 10½ inch Jell-cake Tins	15
3 Tube Cake tins	15
6 4 inch Pie tins	10
1 Gravy strainer	05
1 Tea canister	10
1 8 inch Tin Cover	03
1 13 inch Tin Cover	07
1 Wire Potato masher	05
1 1 qt Funnel	10
2 Biscuit cutters	05
1 Nutmeg grater	05
1 Pair Scissors	10
3 Stove-handles	09
1 Stove-shovel	10
1 Kitchen knife	05
1 Can-opener, Cork-screw, Knife-sharpener, and Glass-cutter combined	05
1 Beef-steak Mallet	10
1 Victor Knife-sharpener	10
1 Wonder Egg beater	10
1 Mincing knife	10
1 Luminous Match safe	10
2 Augite Stove mats	10
1 Flower-pot Stand	10
1 Pair Shelf brackets	15
1 Can opener	10
1 Soap dish	05
1 Toy Caster	15
1 Barbant's Toilet-case	25
1 Towel rack	10
1 Brass School-bell	10
1 Flying Top	15
1 Screw-driver and Wrench Combined	05
1 Wire Dish-cloth	05
1 Steel Watch chain	03
1 Flour-scoop	05
1 Broom-holder	05
1 Box Papeterie for Children	05
1 Boot-jack	10
6 Bottles Ink (assorted colors)	25
1 Tin Lamp and Burner	15
1 Pair N. P. Tweezers and Ear-spoon	10
1 Milk skimmer	05
3 Pint Basins	07
1 Sink-cleaner	10
3 Pairs Shade and Curtain Hooks	15
1 Floor dredge	05
1 Mouse trap	05
1 Wooden Butter-spade	05
1 Spool Hair Wire	05
1 Dust brush	10
1 galvanized Potato-crate	20
Total	$5 02

No. 2 Outfit, 50 Different Articles; List Price $2.50; Our Price, to Close Out, $1.00.

1 Long handled Ladle	05
3 6 inch Crimp Pie tins	09
3 10½ inch Jell-cake Tins	15
3 Tube Cake-tins	15
1 Funnel and Gravy-strainer Combined	10
1 Wire Potato-masher	05
1 Biscuit-cutter	03
1 Nutmeg-grater	05
2 Stove handles	06
1 Combined Can opener	05
1 Beefsteak mallet	10
1 Egg-beater	10
1 Match safe	10
2 Augite Stove mats	10
1 Putty knife and Glass-cutter	05
1 Machine Screw-driver	05
1 Key-ring and Chain	05
1 Flour scoop	05
1 Box Papeterie for Children	05
6 Bottles Ink (assorted colors)	25
1 Milk skimmer	05
3 Pint Basins	07
6 Enameled Nest eggs	15
1 Spool Hair Wire	05
1 Sugar-shell	15
1 Butter knife	20
1 Sad iron Stand	05
1 Mouse trap	05
2 Tack-hammers	05
Total	$2.50

Send all orders to The A. I. Root Co., Medina, Ohio. These goods can not be furnished at our branches. After they are sold out the offers will, of course, be withdrawn.

Gleanings for 50 Cents.

For 50 cts. more we will add to either outfit Gleanings for the rest of the year.

THE A. I. ROOT CO., Medina, Ohio.

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Honey Column.

CITY MARKETS.

New York.—Our market has never been in better shape for both honey and beeswax, so far as stock in hand is concerned. We would suggest to Southern shippers of extracted honey letting it come forward. We have *en route* several shipments of new Southern extracted at this writing. Our market has dropped off slightly on beeswax, though there is a steady demand. We do not expect much more trade in comb honey until the new goods begin to arrive in early fall. We quote our market as follows: Fancy white, 12½@13½; No. 1, 11½@12; fair, 9½@10½; fancy buckwheat, 8@9; No. 1, 7@8; fair, 6½@7. Extracted, Florida white, 7¼@7¾; light amber, 6½@7; amber, 6@6½. Other Southern fancy, per gal., 65@70; fair, 60@65; good, 52½@58. Beeswax, 27@28.

Francis H. Leggett & Co.,
April 25. Franklin and Varick Sts., New York.

Chicago.—Sales are in a small way, as the time of year is with us which usually sees the close of active sales. Owing to the inclement weather, which has cut off the early fruits and vegetables, the honey market has benefited, so that all of the white comb is nearly disposed of. There is quite a quantity of dark and undesirable comb being offered. Best grades of white, 13; off in color, etc., 11@12; light amber, 10@11; dark amber and mixed buckwheat, 7@9. Extracted clover, 8; other grades of white, 7@7½; ambers and dark, 6@7. Beeswax, 27. R. A. Burnett & Co.,
April 18. 163 South Water St., Chicago, Ill.

Boston.—Naturally the call for honey is dropping gradually; and although the stocks on hand are not large, still the demand is so light that the general feeling is weak; and prices are being shaded. Our prices are: Fancy white comb, 13; No. 1, 11@12; A No. 1, 10@11; light amber, 9. Extracted stocks about cleaned up, nominal price, 8c for white; light amber, 7. Beeswax, very light stock, selling at 27@28.

Blake, Scott & Lee,
April 18. 57 Chatham St., Boston, Mass.

Detroit.—Fancy white, 12; No. 1, 10@11; dark and amber, 8@9. Extracted, white, 6@7; dark and amber, 5@6. Beeswax, 25@26½.
April 20. M. H. Hunt & Son, Bell Branch, Mich.

Albany.—Honey market quite active, have had a few small lots come in lately and selling freely. We quote comb, 7@12. Extracted, 5½@6½. Beeswax, 26@28.

MacDougal & Co.,
Successors to Chas. McCulloch & Co.,
April 19. Albany, N. Y.

New York.—Our market is well cleaned up on comb honey; there is a fair demand, especially for white. We are short of unglassed honey, and could dispose of a quantity in a short time at following prices: Fancy white, 12; No. 1, 10@11; amber, 9; buckwheat, 7@7½. Extracted in good demand at unchanged prices. Beeswax quiet at 27.

Hildreth Bros. & Segelken,
April 19. 120 & 122 West Broadway.

Philadelphia.—Honey has been moving off slowly since last quotations, but the supply has been equal to the demand. Hardly enough sales have been made to fix a definite price, but we quote as follows: Fancy comb, 15@16; No. 1, 13; amber, 11. Extracted, white, 7; amber, 5@6. Beeswax, 28. We are producers of honey—do not handle on commission.

Wm. A. Selser,
April 19. 10 Vine St., Philadelphia, Pa.

For Sale.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60-lb. cans for $7.20. The Arkansas Valley Apiaries,
Oliver Foster, Prop.
Las Animas, Bent Co., Colo.

Lice or Chicks?

Which do you prefer? P. D. Q. Powder settles the lice question dead sure. One pound box, 25c; 5-lb. bags, $1.00; postage 1c per oz. extra. Our richly illustrated catalog, "Hen Talk," which tells about the care of poultry, and America's best Buff, Barred, and W. Rocks, Lt. Brahmas, and B. Cochins sent free for the asking.

Highland Poultry Farm, Box 44, Blue Ash, O.

EARLY QUEENS now ready, $1.00; six for $4.50. After April 15, 75c; six for $4.25; 12 for $8.00. May, six for $3.75; dozen for $7.25. Warranted; safe arrival guaranteed. Two yards. Big stock of fine queens carefully reared by Doolittle's method. Free circular. **J. B. CASE, Port Orange, Fla.**

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of faultless 5-banded workers. Breeding queens always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season. **W. H. LAWS, Lavaca, Seb. Co., Ark.**

Your Order for Queens will be promptly filled by return mail, with the best of queens. Our strain of Italians is unequaled as honey-gatherers. Send for our price list, and see what others say of our bees.

Tested queens $1.00 each; untested 75c, $8.00 per dozen.

J. W. K. SHAW & CO.,
Loreauville, = Iberia Parish, = Louisiana.

NUCLEI. One-frame and queen, $1.25; Bees, 1 lb. on frame, $1.00; 10 or more lbs., 75c. Queens, 50c, 75c, and $1.00, from imported mothers. Satisfaction guaranteed. All queens not good replaced. G. F. Davidson & Sons, Fairview, Texas.

FOR SALE.

Self-regulating incubators. Guaranteed to hatch ninety per cent. Send for catalog. Address
M. E. FIRESTONE, Sidney, Ohio.

QUEENS. Untested Italian, $1.00 each; tested, $1.25 each. Catalog free. Address
Theodore Bender, Canton, Ohio.

$5 for only $1!

Some one,

we believe, has said that, to subscribe for *all* the bee-papers, would cost $5; and that just *one* paper, costing a dollar a year, would be sufficient provided that paper contained, besides its regular matter, *the cream of all the other bee-papers.* Well, that one paper, of course, is the AMERICAN BEE JOURNAL. Not because we publish it do we say this, but because a good many people believe it comes nearest being the *truth.*

Now,

we never have advised taking only one bee-paper; but we are willing to say that, if you can afford to subscribe for *only one*, it should be the *old* AMERICAN BEE JOURNAL, which is issued *weekly*, and is always crowded with the best bee-information.

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for
Only Fifty Cents
for the
Balance of 1899.

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to see a copy of the AMERICAN BEE JOURNAL, send us your name and address on a postal card; or, if you want a good big "taste" of it send us *10 cents* (in stamps or silver) and we will mail you 13 different numbers that have been issued this year. That means a "trial trip" of *three months for only 10 cents.* How about it? Hadn't you better write us *at once?* We believe you will do so.

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We have just received a large carload of sections, extractors, smokers, veils, etc., direct from the factory, and are prepared to supply bee-keepers with the same promptly. Do not send a long distance and pay high freights. Write for our prices.

M. R. MADARY, - Fresno, California.

Albino Queens. If you want the most prolific queens, if you want the gentlest bees, if you want the best honey-gatherers you ever saw, try my Albinos. Untested queens in April, $1. Tested, $1.50.
J. D. GIVENS, Lisbon, Texas.

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ROOT'S GOODS--ROOT'S PRICES

MUTH'S HONEY-JARS,
MUTH'S HONEY-EXTRACTORS.
LANGSTROTH HIVES,

and every thing pertaining to same; in fact, every thing used by bee-keepers. Send for our catalog.

C. H. W. WEBER,
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Successor to Chas. F. Muth & Son and A. Muth.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
Published by THE A. I. ROOT CO. $1.00 PER YEAR MEDINA, OHIO.

VOL. XXVII. MAY 1, 1899. NO. 9.

STRAY STRAWS FROM DR C. C. MILLER

A SPRAYER, one that throws a much coarser spray than the Faultless, would be a good thing to fill combs with syrup.

"IS HONEY a vegetable or animal product?" is a question asked on page 317. Perhaps the right answer to that question is that it is both.

I DON'T BELIEVE that one colony in fifty will swarm if managed by J. F. Teel's plan, p. 315. But it isn't a very good plan for comb honey.

EDITOR ABBOTT "is now thoroughly convinced that a cluster of bees with full honey-sacs will not freeze." That depends. If the cluster is large enough, it will not freeze. If small enough, it will most certainly freeze whenever it's cold enough.

J. J. COSBY strikes the right note when he advocates rearing good drones as well as queens, p. 303; but wouldn't it be better, for the sake of avoiding in-breeding, friend Cosby, to feed up for drones a colony different from the one that is fed for queens?

FRIEND A. I. ROOT, here are my heartiest thanks for that talk beginning page 322. There are good people who have faith in Dowie, Electropoise, and all that, and you may do nothing for them; but you may warn others away from the whirlpool.

VERY SOON it will be time again for queen-rearing, and I hope Messrs. Brice, Hutchinson, and Taylor will make close observation to see whether in any case bees make the mistake of choosing larvæ more than three days old from which to rear a queen, so long as they have younger larvæ present.

DECIDEDLY, YES; that short cleat in connection with the hand-hole is a great improvement over the hand-hole alone. The cleat alone is better than the hand-hole alone, and the combination is better than either one alone. But some will prefer a longer cleat. [Every one to his likes and dislikes. I have said this several times before, and I think it is a good motto for a supply-dealer to adopt. The one who prefers to use old-style sections, for instance, should not lash himself into fury because the other fellow prefers and admires plain sections.—ED.]

DEEP CELLS are not a complete preventive of eggs in a super, as J. A. Green says, p. 303, but a deterrent, and the deeper the cells the more they deter. When he put 7 frames instead of 8, that made the cells only about $\frac{1}{10}$ inch deeper. With 6 frames in place of 8, making the cells about ¼ inch deeper, it would be a desperate case that would make the bees gnaw down the cells.

IF YOU START to test the drug formalin for foul brood, you might try izal, which S. Simmins, editor of *Bee Chat*, strongly insists is a success. [The trouble is, doctor, we have no foul brood, and we do not want any here at Medina to test either drug by; but there are some of our unfortunate readers who, disliking to destroy good frames of brood, might feel disposed to give one or both a trial.—ED.]

HENRY ALLEY thinks increasing the size of cell-cups will not increase the size of queens, p. 308. How could it make a difference, when already the queen has more room than she needs in the ordinary cell? [Henry Alley is quite right. I feel like kicking myself for letting a correspondent suggest that an enlargement of the cell would make larger queens, without a protest. I knew better.—ED.]

THE HOFFMAN FRAME, p. 321, is compared with the loose-hanging frame to the advantage of the former; but please remember that the advantages there claimed are not confined to the Hoffman, and that you can have a better frame than it, and still have the advantages of the self-spacer. [A better frame, perhaps, for your locality, doctor. I suppose you refer to the nail-spaced frame that you use. Friend Davenport would not like it nearly as well, possibly, even if he lived in Marengo. But Hoffman frames have certain features that even your nail-spaced frames do not have. Every one to his liking.—ED.]

J. A. GREEN will pardon me for saying that he uses two illustrations, page 302, to prove travel-stain, that hardly apply. Bees on the window destroy the clearness of the glass by means of the gum secreted and brought into use when, *and only when*, the surface is too smooth for their claws to hold. On the comb, the claws of the feet catch, so no gum is left. "Sticky dirt" is found outside a hive where bees are cleaning the honey out of a hive, it is true; but why should their feet be so extremely dirty at that particular time? I *think* the feet have nothing to do with it, but that the bees so cram themselves with honey that they drop a small amount of feces on leaving the hive.

E. E. McCOY and the editor don't agree as to the difficulty of getting wide frames out of a hive, p. 315. It all depends. I once emptied a hive in which the wide frames filled the hive *full*, and it pretty nearly beat me. With a space of ½ inch beside the frames, it's as easy to take them out as to take out closed-end brood-frames. [Not quite, to my notion. Wide frames filled with sections have many points of contact; whereas closed-end frames have contact only along the end-bars. The worst sticking with the old wide frames that we had was the sticking of the sections to the separator; the sections of one wide frame sticking to the separators of the wide frame next to it. But I have no quarrel with those who wish to use those antiquated devices. I know some people who will use coal oil when they could get electricity at the same price for lighting, if they figure the time for caring for lamps. The world is full of such people, and they are good people too.—ED.]

DON'T FEEL too disappointed if "bleaching the surface of travel-stained comb honey" doesn't prove an easy task. Remember that "travel-stain" is an utter misnomer, that the feet of the bees have nothing to do in the case, that the discoloring is mainly from particles of old comb from below, and that to get rid of it you must remove part of the capping itself. [That is true; the discoloration does go clear through the capping of so-called travel-stained honey. But Byron Walker says positively he has a method for making those combs white. How do you know he has not some scheme of whitewashing that covers up those dirty faces just as you would the unpainted boards on the back of your house with white paint? I am craning my neck to see what Mr. Walker's *modus operandi* is. Will he please stop just long enough in his rush work to tell us how he does it, and thus relieve us of this curiosity?—ED.]

FRESH LIGHT seems to be coming on that foul-brood-boiling business all the time. Harry Howe now says, p. 306, that the bacillus can't live in honey, and that the spore can't vegetate in honey. Then the spore's the only thing we have to deal with. But if Mr. Brice is interpreted correctly, no amount of boiling will kill the spore, and, acccording to that, three hours' boiling would not be safe. But it certainly looks as though boiling destroyed spores for Messrs. Mackenzie and Howard. I'm still standing on Taylor's side of the fence, but sending exploring glances toward your side, Ernest. [But, doctor, my side is safer until we have more light. Better get over on my side of the fence, and I will give you a quarter of my log to sit on. When Mr. Thos. Wm. Cowan, editor of the *British Bee Journal*, says fifteen minutes' boiling is sufficient to destroy even the spores, then I will go so far as to get on the fence — perhaps I will get clear over; but I am not going to do any climbing just yet.—ED.]

MRS. A. J. BARBER has struck a good plan to get bees to starting in sections, page 309. The basic idea is that bees will start work on comb that is emptied of its honey much more readily than on foundation. And they'll start just as soon on combs in sections as on extracting-combs. Moreover they'll make a prompt start on a single section of comb. Mrs. Barber will find it a decided step in advance, and so will you, Mr. Editor, if you will put a bait section in a super instead of putting on extracting-combs, thus getting all honey in sections. [But, doctor, I have tried both ways. Down here in Medina bees get more into the *working spirit* after they have worked in a set of half-depth extracting-combs—much more so than if they putter away with one little bait section in a comb-honey super. One bait section starts only a few bees comparatively. A whole set of half-depth extracting-combs starts the *whole colony*. It is not necessary that these combs should be built full; but after they once get nicely started, take them off and put a comb-honey super on top. But say, doctor, why not produce a little extracted honey? When comb honey sells at 10 cents, and extracted at 6, both of the same quality, is there not just about as much money in one as the other? I am speaking of the prices that ruled a year ago last summer, in a wholesale way — the price that the bee-keeper got for his honey. More extracted can be produced than comb; and the cost of packages for 60 to 120 pounds of extracted honey is much less than the cost of the package, including the sections, for the same weight of comb honey — a good deal less if we include foundation for sections. You may say you have no market for extracted. Are you sure? You may say, again, that you get more money for your honey than 10 cents. In the same way, you would get more money than 6 cents for extracted. You aim to supply the market early, and thus get a good price; and you are careful to grade honestly, and always sell of the same quality. As I understand it, your buyer practically contracts for your honey before it is produced, because he *knows* beforehand just what you will give him. There, now, I did not mean to get off the question; but if, while on the side track, I hit a nail on the head, it is a little item that some of our hard-working producers ought to bear more carefully in mind.

In the mean time, doctor, suppose you figure up how much it costs you a pound for packages for comb honey, including foundation in lots of 100 to 150 pounds. Include in your figures labor for putting in foundation, folding sections, making shipping-cases, etc. Extracted in 60-lb. cans costs about ½ cent per pound. The point I am trying to get at is this: Is there not as much or more money in extracted at 6 than in comb at 10 cents? If higher prices can be secured for both, the relation will be the same.—Ed.]

PICKINGS FROM OUR NEIGHBORS' FIELDS.

BY "STENOG."

"The sun is up," shouts lazy Drone;
"Ye workers, take to wing,
And bring me lots of nectar fresh,
While I—*sit here and sing*."

PROGRESSIVE BEE-KEEPER.

A prize story, "Two Worlds," has been commenced, written by Mrs. J. M. Null. I am well pleased with it. The editor says there were 17 contestants, and two-thirds of them wrote with a lead-pencil. I can reallize how Mr. Leahy felt about the pencils. Why anybody will choose a pencil instead of a pen for writing to an editor is more than I can make out. Always use a pen, and a blunt one, and write on good paper. Use ruled paper, and don't run one line into another. Be careful to make the end of a sentence plain, ending with a period, and beginning the next sentence with a capital letter. Then — get a typewriter! Mr. Leahy says four of the stories were excellent, but were rejected on account of bad spelling, grammatical slips, etc.

BEE-KEEPERS' REVIEW.

In regard to an easy way of rendering wax, Mr. A. C. Miller, of Providence, R. I., says if old combs are properly treated before melting, the pollen and silk will not absorb the wax nor produce the jelly-like gum referred to, and much of the annoyance of reduction will be avoided. The best method is to place the combs in a strong solution of sulphuric acid and cold water about a week before melting. If the combs are well broken up, and occasionally stirred in this solution, the acid will decompose these troublesome substances, and a large part of them will remain behind when the crushed comb is removed to the melting-pot.

* * *

C. Davenport says a solar extractor should have double glass, and be made tight. The combs should be spread out, and not piled on each other. He finds the wax is so completely extracted in this way that any further attempt to get out more by pressure is time wasted. If the comb contains pollen, a pressure will get from 20 to 50 per cent more wax. The time required to treat old comb in a solar extractor is so great as to make its use entirely out of the question with Mr. Davenport, so he has settled upon the old-fashioned method of boiling as being the quickest and most effective way of rendering old comb. By this method he gets ⅞ or more of the wax without the aid of a press. Before boiling he soaks the combs ten days or two weeks in barrels, weighting the wax down with stones. He puts the wax into a sack before boiling, keeping it well stirred with a stick. After the water boils it requires but a short time for all the wax to escape from the sack. The sack must not be made of woven stuff, but of coarse knit cotton stuff like that in a coarse knit heavy cotton sock.

AMERICAN BEE JOURNAL.

Daniel Whitmer reports a remarkable case of the cure of rheumatism by means of stings. He was attacked with sciatic rheumatism, resulting in paralysis of the back, thighs, kidneys, bladder, etc., and was forced under the doctor's care, and confined to his room for three months. One day in handling a colony of bees he irritated them so that they rushed out at him and stung them so as to make him dance whether he believed in it or not. In only 24 hours he was a well man so far as rheumatism was concerned, numbness all gone. He says it has returned three times in 20 years, but it has subsided every time he got out among his bees in the spring.

* * *

Touching the union of the "Association" and the "Union," Mr. York well says, "The door is open for the Union to come into the Association whenever it decides to cast in its lot." That's it. One of the associations must simply cease to exist, and its members be incorporated in the other. Those who are trying to unite certain other organizations nowadays would do well to read Mr. York's words. The only way is to find the best, and annihilate the others by disbanding in favor of the better.

* * *

The political discussion between Mr. Doolittle and Mr. Abbott is very interesting. In winding up his reply to Mr. Doolittle, Mr. Abbott touches on the subject of adulteration as follows: "I honestly believe that the adulteration fraud is the gigantic crime of the century, and a disposition to wink at it shows a lack of moral sentiment that should start into activity the most sluggish and indifferent citizen of a free country. Adulteration ignores the foundation principles of all moral sentiment, and undermines two of the recognized basic ideas of legitimate trade and commerce — namely, that a contract is the agreement of two minds as touching one thing, and that every man who has come into the lawful possession of any article has a right to fix the price at which he will part with it. If he makes the price so many pounds of honey, and you give him half the amount in glucose, you defraud him."

* * *

Mr. York spells "burr-comb" with one *r*, but spells *fuzz* with two z's, instead of *fuz*. Why not go the whole length and spell it cel, wil, *be* for *bee*, etc.? The new spelling is certainly misleading when *past* is used for *passed*. A law that was *past* last March had ceased to be a law at that time.

Although a little out of my beat, I make a few extracts here relative to the Leahy Mfg. Co., Higginsville, Mo. I get my information from the *Advance*, of that place :

> In 1883 R. B. Leahy, then a struggling day laborer, made his appearance in this city, and for a time found employment doing odd jobs for several of our oldest citizens. Soon after his arrival here he opened a little wood-shop and began his life's work, that of building bee-hives and kindred supplies. His largest and most expensive piece of machinery at that time was a foot-power saw. With this he worked early and late, and by severe perseverance he added to his plant, little by little, until he was so fixed that his work and output attracted some little attention.
>
> In 1890 he started the erection of his present plant, and, being short of finances, succeeded in interesting John J., Jas. E., F. M., and E. B. Gladish sufficiently to form a stock company, of which he retained a half interest. This stock company was organized under the name of The Leahy Manufacturing Company, with a paid-up capital of $8000. R. B. Leahy was appointed general manager and treasurer, and Ed. B. Gladish, general foreman of the shops. The business has been continuously under the same management since, and the present business is a sufficient proof that it has prospered.
>
> Late last fall it became necessary to again enlarge the plant, and a new brick addition was built, which, with the new and improved machinery added at that time, doubled the capacity of the plant. They now occupy a two-story brick building, 54x130 feet, thoroughly equipped up stairs and down with the best improved machinery. In addition to the main building they have several warehouses, their waxroom and tin-shops being under separate cover.
>
> In the busiest season, which is now on, the plant is run day and night, and from 35 to 40 men and boys are employed during this period. That this factory is a great boom to labor has been duly demonstrated, over $10,000 being paid out here last year for labor alone. Sixty-five carloads of material was consumed in the manufacture of goods sold last year, which amounted to over $30,000.

GENERAL CORRESPONDENCE

DADANT-QUINBY HIVES VS. TWO AND THREE STORY EIGHT-FRAME LANGSTROTH.

Arguments in Favor of the Former, by a User of the Dadant Hive; the Editor Challenged; the Challenge Accepted.

BY A. N. DRAPER.

Mr. E. R. Root:—I have just received your April 1st issue. In your footnotes under Mr. Dadant's article, page 259, I find these words : "But I get a good deal of solid comfort out of the notion, that almost amounts to conviction, that two eight-frame hives will accomplish the same results," etc. As I have had a good deal of experience along this line, perhaps it will not be uninteresting to you at this time.

In 1889 I had a little over 200 hives of bees that I was running for extracted honey. I had them in eight-frame Simplicity hives, with an average of about three bodies to the hive containing 24 Simplicity frames. I wintered them in one and two stories. December 10, 11, and 12, 1889, I attended the State Horticultural Society's meeting at Hamilton, and, of course, I visited the Dadants. They had from 70 to 80 barrels of honey on hand of that year's crop ; in fact, the whole basement of their barn was filled with barrels full of extracted honey, as they had no other building large enough to hold their crop of honey. Their crop at that time was worth over $4000 cash. At that time I had my second attack of bee-fever, and I took a serious relapse. Their bees were all packed in leaves for the winter, and I had a good opportunity to see how it was done. I then and there bought me a Barnes foot-power saw, and that winter I made up over 200 of those large hives.

You will see on p. 151, Art. 306, Langstroth Revised, as follows : "The Langstroth-Simplicity frame is long enough, but hardly deep enough. The Quinby frame is deep enough, but would be better if a little shorter." In Art. 397 they say : "We would counsel beginners to use a frame as long as the standard Langstroth, and as deep as the Quinby."

Ten years have gone by. Some of the winters I had over 400 colonies. I have packed leaves entirely around two-story eight-frame hives, with the exception of the south end. Kindly permit me to remark, that, could you have been here and seen the difference between the large hives and the two eight-frame hives, your notion of "solid comfort" would have given way to feelings of supreme disgust. So thoroughly dissatisfied with them I became that I have sold off nearly all of my eight-frame hives.

I will make this proposition to you : Make thirty or forty of your ten-frame hives with the brood-frames 2⅛ inches deeper than your regular size, and the brood-chamber that much deeper to receive them. All the rest of your fixtures are to be just as for a regular ten-frame hive. Fill them up with bees for one of your out-apiaries ; pack them warm for winter and spring. If, after three years' experience with them, you don't find them to give you more solid comfort than any other style of brood-chamber you have ever tried, for the production of either comb or extracted honey, kindly send me a bill for whatever the expense of the experiment may be, and I will send you a check for the amount. Your Hoffman frame will overcome the difficulty of the bottoms of the frames swinging together. As I understand it, the swinging-together of the lower parts of the frames was always considered the main objection to the deep frame.

The Hoffman frame will be superior to any the Dadants have used. See their spacing-wire in their book, p. 168, Art. 347. In practice, that spacing-wire is a very serious objection that the Hoffman frame would overcome. I have thought of ordering one or two hundred of these hives, but have had poor seasons and too much other business on hand.

The fact is, in actual practice this extra 2⅛ inches is added right through the middle of the brood-nest, where it is spread to its widest extent, and the two other frames are also added right in the middle of the brood-nest. If you wish to see bees outstrip any thing you have ever seen in the way of raising brood during March, April, and May, try this. I can't see any thing else in the way of your trying this experiment except your dislike of having a different-sized frame. Your regular outside winter-case is to be kept on it with leaves packed in top, and then you have what is virtually the Dadant hive.

You have told me yourself that you made a business of trying experiments for the benefit of the bee keepers. Can you give any good reason for not trying this, as it has been discussed for years, and by very able men, and still you display your ignorance in regard to it every little while?

Upper Alton, Ill., Apr. 8.

[I have read over with a great deal of interest all you have to say. While I can not for the life of me see *why* a large colony in one brood-nest should secure so much better results than the same colony in two brood-nests, I am not going to be foolish enough to dispute your facts and figures. As to your challenge, yes, I will accept it, and I have this day ordered a few hives made to take L. length of top and bottom bars, but an extra depth of end-bar. I hope to get these hives into use this summer; but in making this test I hope some of my friends, and some who perhaps are not my friends, will not score me by assuming that I am going to get on to a new hobby, and ride it for all it is worth. While I believe in large colonies, I do not see how it makes any difference whether they are in one or two brood-chambers; but perhaps it does. If the test with a few hives this summer is favorable, then I will try more next summer. But before I can be convinced I shall want to see about half an apiary in Dadant hives pitted against another half of apiary in the same location, of colonies in eight-frame L. hives; and if Dr. Miller is interested in the same problem, if he cares to make a test with the same number of colonies I will furnish the hives free.

I omitted to state that possibly, if Mr. Draper had made his two tests for the production of *comb* honey, the difference might have been in favor of the shallower frame.—ED.]

* * *

LOYALTY TO TRUTH.

Is the Review Critic Hypercritical?

BY DR. C. C. MILLER.

The critic of *Review* takes to task the editor of GLEANINGS for changing his mind. One of the items mentioned in that connection is the matter of the hostility of bees to dark colors. Mr. Root formerly held that one was likely to be stung no more with dark than with light clothing. Then he changed his mind, Mr. Taylor says, because "a few 'reports' came in, which, in so far as they went, at least, had no foundation in sound reason, so far as I could discern." Which goes to show that Mr. Taylor's discernment is sadly in need of tinkering. He closes the paragraph by saying, "The cause of truth is advanced by careful, cautious, sober loyalty to it." I confess I don't quite see how the application of that sentence to the case in hand has any "foundation in sound reason." Does Mr. Taylor mean to intimate that Mr. Root has been disloyal to what he thinks is the truth? I do not believe so. It is probably rather a case of "darkening counsel by words without knowledge."

It is true that "the cause of truth is advanced by loyalty to it," and that very loyalty demands that, when a man finds he is holding on to an error, he shall promptly right about face, instead of stubbornly holding on to an error, as Mr. Taylor is too much inclined to do.

Another count in the charge is that, when Mr. Root learned that spores of foul brood were not killed by being subjected to a temperature of about 212° for more than two hours, he gave up the belief that a few minutes' boiling was sufficient to destroy the vitality of spores. If he was a reasonable being, with the light he had what else could he do? Now comes Mr. Taylor with new light on the case, and says that boiling water and boiling honey are very different things as to their heat, making it seem a reasonable thing to believe that it is quite possible that 15 minutes' boiling in honey may be more destructive to vitality than two or three hours in water. Mr. Taylor may consider it "hasty and ill considered judgment" on my part to change my mind promptly, and agree that 15 minutes' boiling is enough, but that's exactly where I stand at the present moment; and if I find out that boiling honey is no hotter than boiling water, then I'll change back again. It seems to me that's the only way for one who wants to be loyal to the truth.

WAS MR. DADANT FAIR?

Another item that Mr. Taylor gives is that, after Mr. Dadant overestimated the cost of large hives, and Mr. Root found out the cost to be considerably less, he said, "It shows that you meant to be entirely fair." Mr. Taylor says, "Of course, no one suspects Mr. Dadant of ever meaning to be unfair. But it seems strange to me that he should be commended for fairness on account of a case in which he made a statement that was manifestly *not* fair." That looks as though Mr. Taylor has established for himself a critic's code of language that does not entirely agree with that of common people. He says it seems strange to him that Mr. Dadant should be commended for fairness. I can't say how such things may be considered in the ranks of professional critics, but I do know that among common people such fairness is commended. Here's a man who not only always pays his honest debts, but in every deal he makes he is so anxious not to overreach that he pays a little more than he ought. Instead of saying, "That man is not strictly honest," people always applaud him for his honesty. A man who in controversy is willing to give to an argument of an opponent all the weight it deserves, and sometimes a little more, is commended by honest common people for his fairness.

I'm inclined to believe it's a case of Dr. Jekyl and Mr. Hyde. My old friend Mr. Taylor heartily commends Mr. Dadant for his fairness, and says, "I wish there were more like him," while Mr. Taylor the critic gets out his rule and square, shuts one eye, and says, "That statement is not in exact accordance with the facts in the case. Mr. Dadant is an unfair man." Possibly no fault would have been found with the sentence if Mr. Root had said, "While you were incorrect in your statement, Mr. Dadant, the error you made was unfair to yourself, and that's a good deal better than if you had erred on the other side."

LOOSE USE OF LANGUAGE.

But what in the world made him put up his rule and square before he penned the last sentence of the paragraph in which he so carefully measures Mr. Root's language? That last sentence reads, "An injurious statement about a hive one favors is even more liable to injury than one about a hive one opposes." One statement is more liable to injury than another? To what injury is the statement liable? I don't really suppose Mr. Taylor means what he says; but when he insists so critically that others shall say exactly what they mean, why doesn't he make exact statements himself?

Marengo, Ill., Feb. 28.

[Mr. Taylor's reply:]

I highly appreciate the privilege of having my reply to the above article from Dr. Miller appear along with it in the same issue, for thus a reply can be made much briefer, and at the same time much really incurable injustice prevented. I am also especially glad to appear in GLEANINGS, because many readers who have otherwise no opportunity may thus get acquainted at first hands with the bold bad man who writes criticisms for the *Review*.

It seems to me the foregoing criticisms of the doctor's must have been written in extreme haste, for in no other way can I reasonably account for the numerous instances in which he either fails to catch my meaning or else fails to express himself clearly. Thus he says that "I take to task the editor of GLEANINGS for changing his mind." Not at all, not at all; but for changing his mind hastily and without due consideration. Quite a different thing; and, moreover, I think this idea was expressed very clearly and with great prominence. Again he says he does not see the application of my sentence: "The cause of truth is advanced by careful, cautious, sober loyalty to it;" and it is quite clear that he does not, for a little later he requotes, saying, "It is true that 'the cause of truth is advanced by loyalty to it,'" and argues from it as if the two sentences were identical in meaning. As I wrote it it is no doubt generally true, and it may assist the doctor to see the application of it if he will permit me to say that his misquotation, which he affirms to be true, is by no means necessarily true. Careless, impulsive, indiscreet loyalty to truth may prove very disastrous. I was inveighing against *hasty* changes of opinion; and while such changes are quite consistent with a certain kind of loyalty to truth, it is not careful, cautious, sober loyalty to it. Then in the third paragraph he says, "Now comes Mr. Taylor with new light on the case, and says that boiling water and boiling honey are very different things as to their heat." I think the reader who had no opportunity to examine what I actually said would get a very erroneous idea of my language from the way the doctor puts it. I made no such positive statement. What I wrote amounted to little more than a supposition, supported, to be sure, by what seemed to me to be arguments that deserved careful consideration.

One more instance: In the paragraph relating to Mr. Dadant the doctor repeats the vicious trick he indulged in in treating of loyalty to truth of making a partial and inadequate quotation or statement some time after having made a full one. Thus he says, referring to me, "He says it seems strange to him that Mr. Dadant should be commended for fairness." I made no such statement as that, nor one that would bear any such construction; and the way the doctor puts it, it is well calculated to give an entirely wrong impression to any one who had not the article quoted from before him. These matters are outside the main questions, but they ought not to be overlooked, and I must still mention one or two other incidental matters.

There are certain coarse insinuations found in the doctor's article in such expressions as, "which goes to show that Mr. Taylor's discernment is sadly in need of tinkering." "Instead of stubbornly holding on to an error, as Mr. Taylor is too much inclined to do." "It's a case of Dr. Jekyl and Mr. Hyde." Such, though the doctor indulges in them, are not to be recommended; but they are to be pardoned in his case, since he is not often guilty in that respect except when he is conscious of dealing with the blood-thirsty monster of the *Review*. Nevertheless, I feel that in such indulgence he is hardly doing himself justice.

Again, in conclusion the doctor writes a rarely entertaining paragraph about the "Loose Use of Language," aimed at me, all founded upon the substitution of one letter for another by the printer. Read it "injure," brother.

Now a word on the main points: As to the matter of my criticism of the editor's hasty change of opinion in the two points the doctor refers to, I am not sure the doctor has a correct comprehension of it, and I am quite sure his readers can not have unless they have read my original criticism, so I may be permitted an attempt to make it clear. For the sake of brevity I shall try to make it answer my purpose to refer to only one of the two points; viz., that concerning foul brood, and to that, only by way of answer to the question the doctor propounds in the third paragraph of his foregoing article; namely, "If he was a reasonable being with the light he had, what else could he do?" In my original criticism I said, "How different is the scientific attitude as shown in the *American Bee Journal*, page 18, where Prof. Cook says, 'I referred above to certain acorn-infesting larvæ that secrete nectar. I have never seen them, but have often heard of such — principally from Missouri—so often that I think they may be more than a myth. Yet I am free to say that I should feel more certain if I actually saw them. I can see how oak-tree plant-lice, which are by no means rare, might lead to an erroneous conclusion' " (*Review*, 48). This quotation was made anent the editor's change of opinion, largely on account of the single report of Mr. Buchanan. So the answer to the doctor's question is: Assume the scientific attitude; seek for new light — not for just a little, so that there will be a preponderance; but, to change the figure, since his foundation has slipped from under him let him investigate until he has found another stable one. We see, in recent events, the results of the doctor's position. It is laughable (may I not say it without offense?) that, within the space of about two months, the doctor and the editor have each been upon both sides of the important question as to whether fifteen minutes' boiling of honey is sufficient to destroy the vitality of foul-brood germs therein; and, strange to say, they are upon opposite sides still, and the end is not yet. This situation is altogether a fine commentary upon the doctor's argument. Why should we be carried about with every wind of doctrine in scientific matters any more than in religious ones? Yes, the doctor, as he seems half to suspect, comes into the same condemnation unless he has some light which he does not reveal. If he has investigated the boiling-point of honey, and has found that its temperature is high enough to destroy with certainty foul-brood spores in the time mentioned, then he does not.

In the paragraph headed "Was Mr. Dadant Fair?" the pyrotechnics of the doctor are to me quite bewildering. They ought to have quite close attention; but as I fear I trespass on space I must treat them very briefly. The doctor speaks much of "honesty" and the "common people." I infer that there must be common people and common people, or else that locality makes a difference, for I am aware of none in this neighborhood, such as he describes; and the man who in "every deal he makes is so anxious not to overreach that he pays a little more than he ought" would not be looked upon by the common people here at all as he seems to be by those with whom the doctor is acquainted. Here one of the more conservative ones would say he is foolish; one of the more impulsive ones, instead of using the adjective "foolish," would use the noun with a more or less emphatic expletive before it. Or if the man were wealthy, so that he could always pay a little more than he ought without injustice to himself or to his family, he would not be "applauded for his honesty," though he might be for his generosity. Hereabouts the question of the amount of a debt is an exact science, and there is no necessity of paying more than is found to be due in order to be sure that a sufficient payment has been made. When one always gladly pays the exact amount due he is considered honest so far as financial matters go, and he can not be considered more honest by paying more. A name for honesty can not be purchased by a lavish use of money, or many a blackleg would have to be considered honest. When a man has no one depending on him, nor any creditors, he may, of course, be as generous as he likes with his money: it is a matter entirely between himself and the recipient. *But when one who is specially recognized as authority on a hive writes for the public about it, the character of his statements is not a mere matter between himself and his antagonist.* Tens and hundreds of others are waiting on his words, and he has no right to be generous in his statements. He is bound to be just—that is, *exact*. To be sure, this all started from a very little matter; but the principle is the important point, and I write to make that clear.

At the suggestion of the editor, as a sort of appendix to the foregoing I make a few comments on some points mentioned by him in late numbers of GLEANINGS. On page 189 he excuses himself for his change of opinion on the foul-brood matter because "it is safer to err on the side that a few minutes' boiling is insufficient," and "we should take that side which we know to be safe." If it is a question of safety merely, I fear the editor will be obliged to change his opinion again; for I am satisfied that, in the hands of many, three hours' boiling would not be entirely safe; at all events, I could give a course of procedure that would be safer than any length of boiling. But the question of safety and the question of the truth of a certain proposition, viz., whether the boiling of honey fifteen minutes is sufficient to destroy the vitality of foul-brood germs therein, are two very distinct things. We had been discussing the latter, and now the editor seems to be confounding another issue with it. We must keep different things distinct or it will be impossible to arrive at any just conclusion at all.

Referring to the editor's remarks on the "Boiling-point of Honey," p. 233, I wish to say that he seems to be asking too much of Dr. Miller and myself in the way of testing the boiling-point of honey when in his own great establishment he can not find a thermometer that will serve to find that point.

Further along the editor seems to be in error in speaking of the boiling-point of water as "212 or 213." At his elevation that point must always be below 212°.

Another error, I think, is found in his suggestion that possibly the scientist boils his foul-brood germs in beef gelatin. In so far as I have observed, scientists always speak of the resisting power of spores with reference to the boiling-point of water, and there would be neither science nor sense in boiling in some other liquid having a different boiling-point—not that the germs are actually turned loose in the water—I do not suppose that to be the case; but the flask containing the culture is suspended in boiling water, and in that way can get as hot as but no hotter than the water.

Now, we have made a distinct advance since the editor, though he has not determined the exact temperature of boiling honey, has found that it is decidedly higher than that of water. It now remains to be determined scientifically what effect boiling honey has on foul-brood germs. What scientist will take the matter up and investigate it fully?

Lapeer, Mich., March 20.

[As will be seen by the date of Dr. Miller's article, this matter should have appeared some time ago; but one of the manuscripts was lost; and while we were waiting for it to turn up we lost considerable time before we located it. I make this explanation as several things have since occurred that might modify the statements of both parties in the controversy.

It appears that your humble servant, or his statements, are the bone of contention. At first I thought I would have nothing to say; but perhaps some explanation from myself ought to be made. From the fact that Mr. Taylor refers to himself as the "bold bad man," and a "blood-thirsty monster," one would infer that he thought Dr. Miller, myself, or our readers held him in such bad esteem. If so, he is decidedly mistaken. So far from being a "bold bad man" or a "monster," I never considered him any thing but a friend with a hypercritical turn of mind. If, on the other hand, the reference to "bad man" and "monster" is used as a sort of pleasantry then it is the first time I have known my friend to so far forget his severe dignity as to *joke* in print.

As to whether I have changed front too hastily in the matter of the length of time required to kill foul-brood germs and spores, and the alleged antipathy of bees for black, recent facts have gone a long way to sustain the wisdom of my course. In deciding in the first place, page 49 of GLEANINGS, that fifteen minutes' boiling was insufficient, I was backed by the European scientist Mr. Genonceaux, by Bacteriologist J. J. Mackenzie, of Canada, by Dr. W. O. Howard, and by the practical tests of a bee-keeper who, it seems to me, conducted his experiment with extreme care. I do not say that these experiments were conclusive, but they were sufficient at that time to justify me in taking the *safe* side. Since that time we have the corroborative evidence from Scientist Brice, of England, Prof. C. F. Hodge, of Massachusetts, and an article from Thos. Wm. Cowan, whom I regard as the most expert scientist we have in our ranks. In addition to what he says elsewhere, in a private note he says this:

> *Dear Mr. Ernest Root:*—I got GLEANINGS for March 15th last evening, and have gone through the correspondence about foul brood, and I think you are perfectly justified in recommending prolonged boiling of honey so as to render it safe to give back to the bees. It is astonishing how difficult it is to make even intelligent people understand what a great difference there is between the bacilli and the spores.
>
> THOS WM. COWAN.
>
> Pinehurst, Pacific Grove, Cal., April 18.

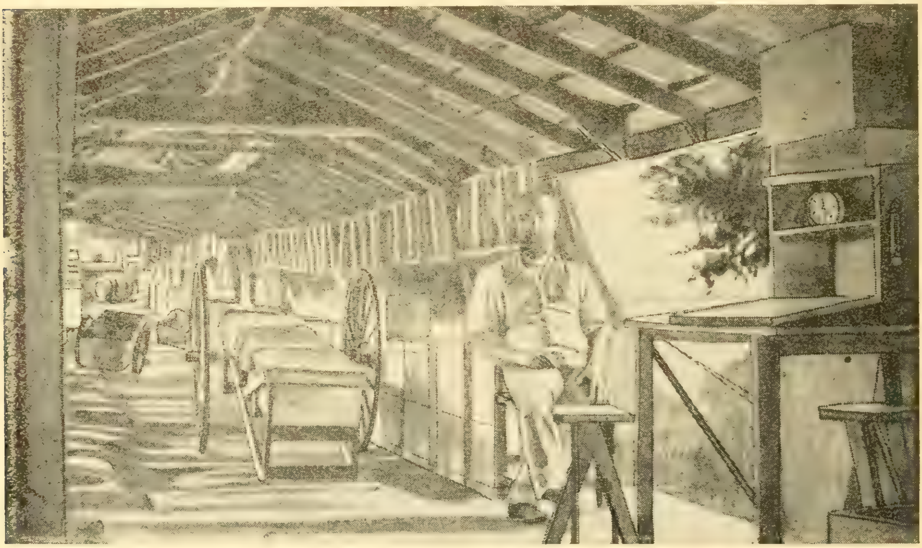


FIG. 1.—A SHEDDED APIARY IN CUBA; A. W. OSBURN IN THE FOREGROUND.

And even Mr. Taylor himself, in his fourth and last paragraph, says he is satisfied that, "in the hands of many, three hours' boiling would not be entirely safe."

I am at a loss to reconcile this quotation with all that he has said before this, tending to take the opposite view; and if Mr. Taylor is convinced, as in the quoted sentence above, I can see no reason why I was hasty in changing front. If I have any influence with the readers of GLEANINGS, and if there are careless bee-keepers among our readers, it was my honest duty to right about face.

As to the matter whether bees dislike black or not, that is not a question of much importance; but the preponderance of evidence seemed to support quite strongly the view that bees do dislike black. I would far rather have it said of me that I was too much inclined to change front when convinced of error than too much inclined, as I fear Bro. Taylor is, to stick to an old expressed opinion in spite of evidence to the contrary.—Ed.]

THE NEW-YORK HONEY-MARKET.

How the Market was Broken Down in New York Forty Years Ago; the Amount of Honey now Sold Extracted, and Where it Goes; Honey Gingerbread.

BY J. E. CRANE.

As I was coming through New York in December last I thought I would spend a little time in the markets of the city to see what I could learn that was new in regard to the sale of honey. Many years ago I sold most of my honey in that market, and was fairly familiar with its wants and capacity. The last of my being in that market, much of the honey was in four-pound boxes, while many of the more enterprising bee-keepers had already changed to two-pound single combs, with glass on each side. In December last I did not see a single four-pound box, and scarcely a two-pound section remained.

Mr. Segelken, of the firm of Hildreth Brothers & Segelken, received me very cordially, and gave up his time to answering my questions which were not a few, as he showed me their large stock of beautiful honey. I expressed some surprise that there was so large a proportion of honey in tall boxes, when he told me that they were much preferred to the square 4¼x4¼.

"Yes, but have not these same 4¼x4¼ done more to make a demand for honey than almost any thing else?" I asked. He admitted it was so, but said they had had their day, and must give way to taller sections. Another dealer told me he had no use for square sections, which I thought was putting it pretty strongly.

Mr. Segelken said the 3⅝x5 were preferred to a 4¼x4¼; but a section 4x5 was preferred to either. I was told 4½ inches was quite too low. Indeed, so much was said in praise of the tall section I began to wonder if it was not a fad in that market. As I noticed very little honey that was finished to the wood—i. e., very little where the row of cells next to the wood was capped—I inquired as to the value of it, or, perhaps, I might better say, the importance of it, and was given to understand that in New York it was of no importance whatever; and then I began to wonder if this was not equally a fad in some other places. However this may be, it seemed certain that in New York a tall section is more in demand. A thin comb with a large comb surface of light weight was preferred to one that is thicker and has less surface, or of heavy weight. If a comb were one inch thick it would answer. Thickness does not seem to count for as much as surface.

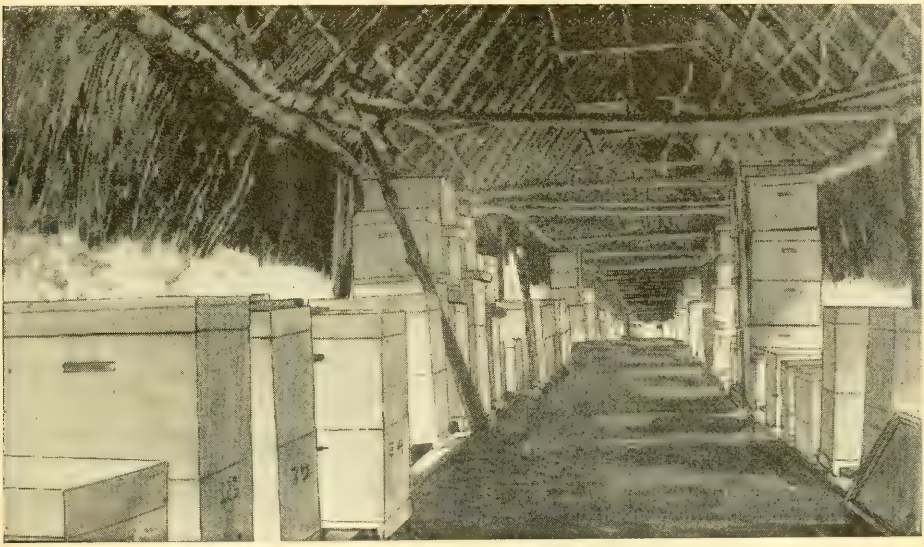


FIG. 2.—CASANOVA APIARY, CUBA.

A great deal of glass is still used in New York, on the sides of sections, most dealers seeming to prefer it. As honey began to be sold in that market fifty years ago or more in glass, so it is still; while in all the newer markets it is rejected so far as I know.

Mr. Segelken expressed himself very strongly on the size of packing-cases, saying that each case ought to hold at least 25 combs, and one large enough to hold 30 combs would be better. He said, as wholesale dealers have said to me before, that almost the first question a buyer asks in looking at honey is, "How many sections in a case? and how much do they weigh?" And this led to a discussion of selling by count rather than by weight, as now generally practiced. He seemed to think it likely to come about, and would for himself prefer to do so; in fact, he was already selling some in this way.

Remembering the experience of the late Moses Quinby in shipping honey to that market, when, in 1860, 20,000 lbs. broke down the market completely, and much of the honey was carried over to the following year before it was sold, I inquired how much honey was now taken by the same market, and was informed that there was no trouble in disposing of about 6,000,000 lbs. yearly, about five-sixths of which was extracted honey; that while, formerly, there was a demand for honey but a part of the year only, now there is a demand the whole year round. These facts were of much interest to me, as the prospective demand for honey is one of great interest to every honey-producer. I might say incidentally right here that, previous to 1875, or about that time, there was, so far as I know, no New England city where honey was regularly sold at wholesale. A little was sent to Boston or other cities, and sold to any one who would buy, or left to be sold on commission by any one who was willing to handle it, or, perhaps I should say, who could be trusted to do so; but I have the impression that most retail dealers, previous to 1875, in New England, went to New York for their honey. To-day several New England cities have wholesale dealers, some of them doing an immense business. These facts show the immense increase in the demand for honey during the last thirty or forty years; and, while encouraging, it is not equal to the gain made in other lines, as, for instance, in the sale of grapes. In 1846 the Keuka Lake region shipped "from two hundred to three hundred pounds" by the Erie canal to New York, and broke the market, while in 1890 the same region shipped some 40,000,000 lbs. of grapes, to say nothing of the enormous quantities sent from other sections. See "The Evolution of Our Native Fruits," by Prof. L. H. Bailey, page 68.

But I was curious to know to what use such large quantities of extracted honey were put. In some of our bee journals it has been reported that extracted honey was used very extensively by tobacco manufacturers, and I believe by brewers also. I was told that but little if any was used for these purposes at the present time, as the brewers are taking kindly to glucose, and tobacco-manufacturers are using sugar syrup instead of honey.

There is a growing demand however, for extracted honey, from druggists and confectioners, and for making honey-cakes, of which the Jews consume large quantities; besides, a large amount of extracted buckwheat honey is exported, to be made into gingerbread. Good! I could have sent my hat flying high above me, only I was indoors and those about me might think me a little off should I become too much excited; but really my heart was lighter at the thought that my honey was not to be used for the manufacture of beer or tobacco, and I was not in any way helping those industries by increasing the production of it.

I was disappointed on finding so little honey in plain sections in New York: for had not E. R. R. told me that quite likely ten to fifteen per cent of all comb honey last year was put up in this way. I wanted much to compare it with the old-style sections in the same market, but there did not appear to be one-half of one per cent in the New York market; but Mr. Segelken quickly explained by saying that the plain sections were preferred by retail dealers, and picked up by them.

I saw but one lot of honey at Hildreth Brothers & Segelken's, out of a large number, that appeared to have the row of cells next to the wood sealed perfectly, like photographs that have recently appeared in GLEANINGS. This lot of honey was built in four-beeway sections without separators, which would indicate that a passage around the edge of the box will encourage bees to finish out and up to the wood much more perfectly than when no such passageway is used. This is a strong point in favor of the Hyde-Scholl separator, or that of Mr. Aspinwall's that enables the bees to pass freely around the edges of sections, and at the same time compels them to build straight combs and combs of even weight.

Middlebury, Vt.

[Some few days ago Mr. Fred Muth, son of the late Charles F., gave us a call. As he was with his father when he did a large business with bakers and others, I asked him a good many questions. He referred to the fact that there was a time when honey was used largely in the brewing business; but of late years glucose has taken its place. Knowing that his father had sold many tons, perhaps, of dark honey to bakers, I asked him why it was that bakers prefer honey to any other form of sweet for certain kinds of baked goods. "Because," said he, "it takes little or no glycerine. Where honey is used as a sweetener, the baked goods remain moist for a great length of time; and honey is the only sweet that will accomplish the desired result. The fact that glycerine has to be used with other syrups, makes them more expensive; and as a matter of economy bakers use honey, and more largely than many people think."

No doubt this is the reason why honey is used in gingerbread. A dry gingerbread is practically unsalable. One that is soft and moist as honey will make it is always salable; and these honey-jumbles, I have sometimes thought, improved with age. When they are first baked they are apt to be too crisp—that is, somewhat dry; but after they have stood for a time they become moist and toothsome.

It is astonishing how the demand has been increasing for the four-beeway sections lately. It simply goes to show that plain sections have demonstrated that lateral or freer communication has *something* to do with better filling of the sections. If lateral communication is a desideratum it can be secured with four-beeway sections; but even these require modified separators in order to secure the full benefit. Ordinary four-beeways used with common separators would be little if any better than two-beeways, and they are much more inconvenient in putting into and taking out of shipping-cases.—ED.]

HOFFMAN FRAMES WITH SHORTENED TOP-BARS.

The Cold-blast Smoker Defended; the Value of Hot and Cold Air with Smoke; Making Syrup by the Percolator Plan; Large vs. Small Hives; the Bearing of Locality on the Whole Question.

BY C. DAVENPORT.

I have seen very little, favorable or otherwise, in regard to those short top bars, end spaced with staples. Some one, I forget who, intimated that there was or might be trouble on account of the ends dropping off the rabbet if the frames in handling got cornerwise in the hive. Last spring I cut the ends off the frames in ten hives, and I have not found any trouble in this respect, and I can not see how there would be any necessity for moving the frames cornerwise enough so there would be; for in practice they have to be moved much more diagonally before one end drops off the rabbet than one would think by looking at the frame; and while it is true I tried them in but a small way I made a point of handling them in the ten hives that did contain them, a number of times, on purpose to see how they worked, and I consider them a decided improvement; and if, with my present experience with them, I had to buy hives this spring I would order short top-bars. I intend to shorten the ends of enough frames this season to give the matter a thorough trial.

It is very seldom that an article calls forth such a long footnote as mine did some time ago about smokers; and while you have said you never desire discussion for the mere sake of argument, neither do I; and it is very seldom indeed that I reply to any criticism or remarks about any thing I write; but I should like to make an exception in this case, and, if you will allow, say a few more words on the subject.

You say it takes longer to light and get a cold-blast smoker going. Why, with a cold-blast smoker properly made, and the right kind of fuel, all that is necessary to get it to going is to put in the fuel, touch a match to it, and *she* is off at once, creating a dense volume of smoke almost at once. I do not say this applies to the Clark smoker—far from it; and I feel as sure as I do about any thing I think I know about bees, that smoke from a cold-blast smoker is better for general use in a yard than that from a hot blast — that is, with Italian and German bees and their crosses. Cyprians I know nothing about.

You say hot air alone will subdue bees. I know it will; but when it is employed it crazes and injures many bees, and, if hot enough, kills many. I firmly believe that the injudicious use of a hot-blast smoker causes the premature death of many thousands of bees in the season when a smoker is most used, and in some cases hundreds from single hives, where, for instance, a colony is handled after the fuel is well burned down so that the bees get direct blasts of very hot air right off the coals—not that they die at once, but they probably might as well, so far as being of any use afterward is concerned. I am aware that I stand almost if not wholly alone in regard to this matter, as I did once before upon an important matter relating to our pursuit. This was when I wrote and described how, when preparing feed, I mixed sugar and cold water, equal parts, by simply putting them together in a barrel and stirring occasionally until the sugar was dissolved.

About this time, or shortly before, there was a good deal said about making feed by the percolator plan. It seemed to be thought by many that the percolating was a great benefit in some mysterious way over simply mixing the two together. I claimed that simply mixing the water and sugar together made just as good feed as was possible to be obtained by any percolating process, and I think that all who have tried the two methods now agree with me, and I believe I may claim the honor of being the first one to advocate the use of, and to describe, how to mix cold water and sugar together for feed.

I have been asked if Mr. Dadant has, by what he has said of late, convinced me that large hives are best. No. He has not convinced me that they are best for *my* locality; but he has explained and argued his side of the subject in a very clear and able manner. It has been said in effect that Mr. Dadant practices what he advocates; that is, he recommends large hives, and uses such exclusively himself. I think this will apply to most of us, and even more so in my case; for, while I have advocated ten-frame hives as the best for bee-keepers in general, I have been cutting down and selling the colonies in my large hives until I have not and do not intend to have any thing in the shape of a frame hive larger than the eight-frame; in fact, I have used and obtained excellent results the past two seasons with some of less capacity than eight frames. While I know from experience that it requires a greater amount of work to manage a yard to the best advantage by the expansion plan of adding one or two combs at a time, I think there is no question but that good results, in both comb and extracted honey, can be obtained by the method Mr. Dadant so ably champions; but in some localities—here, for instance—when it is the most important time to have queens do good work, the weather is often, for much of the time, so cold that a colony in an extra-large hive is at a great disadvantage on account of not being able to keep the temperature high enough for as good results in brood-rearing as they could in a smaller hive; and, though Mr. Dadant says a large hive can, by the use of a division-board, be converted into a small one, this is, I think, a mistake; it can be contracted with a division-board; but so far as keeping the hive warm is concerned it would be better to leave the extra combs in tight division-boards. Yes, I bought forty hives once that had tight division-boards, and they *were* tight after they had been in the hives for a short time. Some of them would tear to pieces sooner than come out; and those that would come out did not wish to go back. Division-boards tight enough to really convert a large hive into a small one are impracticable where the quantity and quality of the propolis are such as we have here ; and what is claimed to the advantage of extra-large hives so far as colonies in them being larger, so that it will require a less number to gather as much or more surplus, and stock a range, is theory if applied to this locality; for here a colony in the spring, as a rule, gets down to about a certain size whether the bees are in a large or medium-sized hive; and a hive not larger than the ten-frame hive gives them ample room to develop what workers they can in time to be of benefit during our main flow. Later some colonies might require more brood-chamber room; but reared then this extra force of workers would be consumers instead of producers ; or, in other words, it would be no advantage, but an expense, to have them reared.

Southern Minn.

[Your estimate of the staples under the top-bar is exactly mine. They add little or nothing to the cost, and make a very great difference in the general ease and convenience of handling the frames.

As to the smokers, it is evident you have a cold blast that is very much superior to the Clark ; and if you send us, at our expense, one of the smokers referred to, I will have the same illustrated, and will comment on it further after having tried it. If we do not like it we will make you a new one embodying the same features, and send that to you.

I believe you have come the nearest of any one I know of in giving a good reason why a locality like yours would favor a small hive. It is no doubt true that in early spring a cluster of bees in a large chamber would have more difficulty in keeping warm than in a smaller chamber ; but how do you reconcile that with the fact that the Dadants are but little south of you? The winters in both cases are practically the same.

Referring to tight-fitting division-boards, I agree with you exactly. We had them one season. Besides disturbing my mental equilibrium in trying to remove them, I found they were but little better, so far as the confinement of heat was concerned, than the board that has a bee-space all around it like a brood-frame.—Ed.]

THE CANADIAN PURE-HONEY BILL.

Some Statements Corrected.

BY S. T. PETTIT.

Mr. E. R. Root:—On page 110 of the *Bee-keepers' Review* appear some corrections of erroneous statements *re* the passage of the Canadian Pure-honey Bill ; and as those statements were reproduced in Gleanings, page 500, 1896, I can not do better than request that you reproduce what is said touching the matter in the *Bee-keepers' Review* for April, 1899, including my remarks and quotations, Mr. T. S. Sproule's letter, and the bill. My motives in writing and pushing the bill were pure, and those charges to the contrary are extremely painful.

Dear Mr. Hutchinson :—I need not tell you that, when people get excited or deeply moved over discussing an important matter, it sometimes happens that exaggerations creep in; but in the case here referred to, actual inventions were employed, and our bill suffered. We have now all had time enough to come to ourselves sufficiently to let truth prevail. I wish for nothing more.

In the *Bee-keepers' Review* for 1895, page 348, the following may be found : "It would help some toward peace if Canadians would cease trying to get a law passed for the purpose of persecuting their neighbors. The sugar-honey law, which has been offered to two parliaments in succession, gives itself away by its wording; evidently not so much intended for general enforcement as for a handy club to hit prominent heretics." Certainly these are strange statements. Comments are unnecessary. The bill below is a sufficient answer.

Then, further along, the writer continues, "The act is so draconically worded that the most innocent beginner in the land could be put in prison for it for no greater crime than feeding sugar to his starving bees to keep them alive over winter."

Doubtless, Mr. Editor, some one must have imposed upon the *Review.* I wrote the bill, and I am not ashamed of it, and I regret that it did not become law unmutilated; but, to place beyond controversy the point as to whether, when first introduced to Parliament, it contained the necessary proviso for feeding sugar to bees when necessary to do so for food for them, I wrote to T. S. Sproule, M. P., who had the bill in charge, and here is his reply, and also the bill which, in due course, he kindly sent me.

Markdale, Jan. 31, 1899.

My Dear Pettit:—I was most agreeably surprised, on receipt of your letter of the 26th inst., to hear from an old friend whom I have so often thought of and wondered how he was faring in life. I need scarcely say I trust our pleasant associations together during the time you were in Ottawa, and the faithful and energetic way you stuck to and advocated the "Pure Honey" question, endeared you to me to such an extent that I can never do other than think in the most kindly way of you. I am perfectly satisfied that, in the first bill, there was provision for feeding bees sugar when required for food; but it is so long since, and memory is so treacherous, that I might be mistaken; and to put it beyond contradiction, I have written the clerk of the Distribution Office to send me a copy of the original bill as introduced; and when that is received I will forward it to you, and then you can put an effectual quietus to these untruthful statements which from time to time appear in the bee-journals. Yours truly, T. S Sproule.

(Copy of the Bill.)

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :

No imitation of honey, or "sugar honey" so called, or other substitute for honey manufactured or produced from cane sugar or from any other substances other than those which bees gather from natural sources, shall be manufactured or produced or offered for sale in Canada, or sold therein; and every person who contravenes the provisions of this Act in any manner shall, on summary conviction, incur a penalty not exceeding four hundred and not less than one hundred dollars, and in default of payment shall be liable to imprisonment for a term not exceeding twelve months, and not less than three months: Provided that this Act shall not be interpreted or construed to prevent the giving of sugar in any form to bees, to be consumed by them as food.

Yes, the bill was offered to two parliaments in succession; but it did not fail because of its faultiness, but because of the malicious and unscrupulous attacks upon it from those within our own ranks, assisted mightily by mixers and adulterators. We have similar laws to protect our butter and cheese, and we know how to appreciate them. S. T. PETTIT.

Belmont, Ont., March 15, 1899.

[I did not know until recently that Mr. Pettit felt that an injustice had been done him by the statement appearing in GLEANINGS, page 500 for 1896. Indeed, I don't think I knew at the time that he was the author of the bill that was said to be so "draconically worded" that there was no provision for feeding bees. In any case, I am sure neither Mr. Hasty nor Mr. Hutchinson meant to do the author of that bill an injustice, and if they made a misstatement, as appears from above, it was because they were misinformed. While it seems a little strange that the matter should have been allowed to go so long uncorrected, yet at this late date, three years after, GLEANINGS is very glad, in justice to Mr. Pettit, to make the correction as prominent as possible.—ED]

* * *

DRONE-COMB; NON-SWARMING BEES, ETC.

Travel-stain Due to a Secretion that is More Abundant During a Poor Honey-flow than a Rapid One.

BY S. P CULLEY.

We believe "the first and primary cause of bees constructing drone comb" in preference to worker comb during a heavy yield of honey to be the carrying-out of the idea of economy of wax (see "Honey-comb," in A B C book), together with haste in the preparation of honey room. When there is a flow of nectar the bees' instinct is to store as great a quantity as possible. They want the most space in the least time, with the smallest amount of wax. Building drone comb secures this, hence they build it. Often they are in such haste for storage room that they build extra-large drone-cells, which must be built at an upward angle or curve — too large and too slanting and too deep to be used for rearing drones.

The instance cited by Dr. Miller (page 166) may be accounted for in several ways. Perhaps he had little or no drone comb in the brood-chamber, and the queen laid eggs in the section of drone comb. If the honey-flow had let up by the time the drones hatched, that would explain it.

TRAVEL-STAIN.

There may be more than one cause for travel-stain — that is to say, there may be more than one kind of stain. But the kind the editor and Mr. Smith are talking about, the stain that "seemed to be in every particle" of the comb, is caused by a secretion similar to saliva, which secretion has a chemical quality, or else carries infinitessimal particles of matter which stain white sections, honey-comb, etc. This secretion is penetrating, and stains cappings and comb-walls through and through. One of its functions is to lubricate the bee's tongue and mandibles. We suspect that it has a chemical action which aids in the preservation of pollen. Like all other secretions it varies in amount. When bees are gathering nectar *rapidly*, loading and unloading their honey-sacs every few minutes, the quantity secreted is hardly appreciable, and the honey is white or clear. When gathering nectar *slowly*, more is secreted, and the honey is amber. Honey gathered very slowly contains enough of this secretion to make it yellow or dark. Thus it modifies the color of honey.

When bees gather pollen this secretion is copious. It moistens the pollen and protects the bee's tongue, and, we *suspect*, acts as an aid in preserving the pollen. Pollen always contains enough to stain yellow the walls of the cell in which it is deposited—this independently of any color-stain the pollen itself may yield. It may stain propolis also.

Bees clean house with their tongues. If any thing does not seem to their liking they scrub it with their tongues. As they do this the secretion is used, and this gives its odor and its stain to the furniture. We may suppose they brush foreign particles of objectionable dust from the honey in the same way. This continual cleaning of house by scrubbing with its tongue, etc., accounts for the kind of stain that Messrs. Smith and Root are discussing. It is reasonable to suppose, also, that bees, like all other animals, give off small particles of matter that aid this secretion in the work of discoloration. The effect of this secretion (probably helped by exudation) may be illustrated by the coloring of a meerschaum pipe. The same substance makes the pipe slightly yellow at first, then quite yellow, and finally a glossy black. The effect of this secretion on the combs, like the tobacco substance in the pipe, colors yellow at first, and finally black. This idea is not theory, but fact. We will furnish ample proof of its correctness if anybody wants proof.

NON-SWARMING BEES.

Apropos of Mr. J. E. Crane's argument that we can produce a breed of non-swarming bees just as we have produced non-sitting hens, is Mr. Crane really sure that the swarming impulse or instinct is rightly compared with the sitting impulse or instinct? Bees are different from chickens. There is the colony which perpetuates itself by brood-rearing; then the increase of colonies requires swarming. The comparison involves some fine points; but inasmuch as the bee can not live an individual life as chickens do, the question is whether the swarming instinct is not allied to the propagating instinct, which is universal and ineradicable. From this point of view one might contend that the production of a breed of non-swarming bees can be compared only to the production of a breed of fowls which failed to propagate. If it can be proven that the swarming instinct is comparable with the propagating instinct of fowls rather than with the sitting instinct, then Mr. Crane's argument fails; for non-sitting, we believe, results from an increase of propagating, or egg-production.

There is a limit to man's control in breeding to produce certain results. He can produce a cow that gives *more* milk; a sheep that bears *more* wool; a strain of bees that gather *more* honey; but has he ever produced a *new* trait, or been able to eradicate a primary instinct? He can manipulate what already exists, but not create. Possibly the swarming instinct or impulse can be bred out: probably it can not. The possibility justifies trying. If it can be done at all, keeping the bees from swarming by dividing, etc., for years — for generations and generations of bees till they "forget," so to speak, the swarming idea, because not using nor needing it, would seem to be the method to adopt in order to produce "non-swarmers."

Higginsville, Mo.

[The name above, S. P. Culley, seems to be new. I looked over the index of several different bee-journals, but I did not find this name as one of the contributors. Nevertheless he writes as one having authority—that is to say, as one who apparently understands what he is talking about. I have been almost inclined to believe that he is an old writer under a *nom de plume*. As he hails from Higginsville, Mo., the place where the *Progressive Bee-keeper* is published, perhaps the editor of that paper could tell me. I do not dispute Mr. Culley's statements; indeed, what he says appears very reasonable; however, as he so kindly offers to furnish us "ample proof," we shall be glad to have him do so, as the knowledge of the actual cause might lead to a remedy.—ED.]

* * *

THE DRAGON-FLY.

The King-bird the Most Destructive of all the Enemies of the Honey-bee.

BY A. J. WRIGHT.

Considering that I have not "travel-stained" the pages of GLEANINGS since the June number of 1898, I may, perhaps, be pardoned for taking a little of your time and space.

It is said to be a fearful thing to teach. It certainly is a fearful thing to write. The writer of any article invites adverse criticism and comment. My article in defense of the dragon-fly, page 471, called out some criticism and comment, but I was pleased to note that the critics confined their observations to southern localities, and thus my position that the dragon-fly is not an enemy to bees in northern latitudes remains good. Now, I honestly think the truth is just this: The male dragon-fly is migratory — going south in vast droves in autumn, and returning in spring. The change in locality causes a desire for change in diet, and the dragon-fly that in the North in summer has feasted on mosquitos, flies, and moths, in the South may live almost exclusively on honey-bees. We know this peculiarity exists in many of our migratory birds, and is supposed to account in part for changes in the marking of plumage.

Speaking of birds, I consider the king-bird the most persistent and destructive of all the enemies of the honey-bee, of which I have any knowledge. I have a kindly feeling toward all of God's creatures, and will not needlessly inflict pain upon any; yet I always feel a degree of satisfaction when I succeed in bringing down this feathered glutton. It is very irritating to the bee-keeper to see this bird launch into the air and into the bees' line of flight, and, before retiring to its perch, pick up a dozen or more, and then, after throwing up the casting—as is done by all birds of prey—return to the attack with an appetite apparently as keen as ever; and when one considers that a single bird is capable of consuming upward of 100 bees daily, and that usually the family consists of the parent birds and from four to six young, we can easily understand that a family or two of king-birds in the vicinity of the apiary may mean the daily destruction of thousands of bees; and when we follow the flight of the bees to some distant pasturage, and find on the way several families of king-birds, all doing a thriving business, one is led to wonder how bees can be produced in sufficient numbers to make good the loss.

I have before me copies of GLEANINGS from March 1, 1898, at which time I first became a subscriber, to the present. I have been looking them over in a general way, and propose to comment upon some of the articles, referring to them by the title, and the page on which they appear in GLEANINGS, 1898.

WHAT KILLED THOSE BEES? (page 626).

The editor gives it up — thinks they might have smothered, but doesn't see how they could in the wire-cloth cage. This cage is just what killed those bees. Much of the wire cloth now in use is painted with green paint containing Paris green. The moisture and gases from a quantity of bees closely confined will soften this paint enough to cause a portion to enter the delicate breathing-organs of the bees, and cause death, and this is particularly true if the wire has been recently painted, and some dryer used in the paint.

HOW BEES WORK IN THE DARK, ETC. (pages 221, 393).

Oh, my! what a grand time is being made over the idea that bees can see in a dark hive, and the queen lay eggs on opposite sides of the comb, bringing the brood back to back! On page 221 the Rœntgen rays are suggested as a solution of the problem; also that the bees have two kinds of sight; and even the editor has dropped into both ideas as the only way of accounting for it. The latter idea is, of course, correct in the sense that one kind of sight sees in the light and the other in the dark.

The article on page 393 repudiates entirely the idea of Rœntgen rays, and tells us that the bees do fancy work in the dark on the same plan that the little sightless children do fancy work in a blind-asylum, and that the bees are probably, to all intents and purposes, as blind as the patients in the asylum, through whose optic nerves no ray of light has ever penetrated to the brain.

The mental acrobatic performances of the editor excite one's admiration; for, after having accorded to the bee the power of double sight, he now indorses the idea of total blindness when working in the hive. Now, this is too bad.

The organ of vision of the honey-bee is not surpassed anywhere in all nature. The Creator has so made this organ that the bee can not only see in the light, but also in the dark, and fashion its beautiful comb with mathematical and mechanical accuracy; and yet its wonderful eyes are compared to the sightless orbs of the unfortunate blind.

The editor finally closes the article by saying that the science, theory, and practice of the writer on page 393 are all right, except the telephone, etc., and that all that the writer states sounds reasonable, and is the best article received on the subject, etc.

Honestly, now, Mr. Editor, *does* it sound *reasonable* that God has given to several of his creatures the power to see, and to perform their various duties, and pursue their pleasures in the dark, and has made the bee as blind as the inmates of a blind-asylum, and unable to perform the varied and beautiful operations of the hive except by feeling it all out? Is God so unkind to bees, and to bees alone? Away with the thought! It is not worthy of consideration.

We know that the cat, dog, mouse, mole, owl, fox, and many other animals can see as well or better in the dark than by daylight. Is it so exceptionally wonderful, then, that the bee can do this? and are our pets so inferior that they must be made to depend upon X-rays and the sense of touch for their wonderful work?

Now, Mr. Editor, I assume that you own a cat — a good mouser; also a dark closet or room — no windows — from which you can remove all the furniture excepting one chair. Now tie the legs of your trousers tight at the ankles; take a live mouse, the cat, and yourself into this place, and shut the door, being sure no light enters. You will find use for the chair. Now liberate the mouse and see how long it will be before you hear the sudden spring, the faint squeak, and the triumphant growl of the feline.

Now, will you say this was done by the sense of touch? Did Thomas or Tabitha just feel carefully around until she (or he) found that mouse? Not any. Now turn on the light, and you will find the cat has the mouse by the back of the neck, in exactly the right place to avoid its bite, and not injure the mouse. Now leave the room, closing the door, allowing cat and mouse to remain. Soon you hear the cat playing with the mouse, and all this in total darkness.

Now, Mr. Editor, if you wish to believe that bees are compelled to go groping and feeling their way about in the dark to accomplish their beautiful work, you are welcome to do so; but if you will give the matter candid investigation I think you will agree that the use of X-rays, blind-asylums, and the sense of touch, to account for the way bees work in the dark, is not tenable.

I suppose, after what I have said, I am expected to clear up the subject, and tell how bees see in the dark. Yes, sir; that is what I expected to do when I began this article, or, at least, to give you my idea of it; and to this end I must ask you, as a first and very important step, to get rid of the popular error that light is necessary to vision. That it is not, did space permit, I could prove by numerous incidents and experiments. All strictly nocturnal animals, birds, and insects, can see better in the dark than in full daylight. The divine Architect has so made the eyes of all nocturns that the rays of dark produce the image upon the prepared retina as easily as the rays of light produce it upon the retina of the human eye. To the nocturns, dark is the normal condition, light the disturbing element.

Another common error is that the pupils of the eyes of cats, owls, etc., expand as dark approaches, to allow more of the rays of light to enter the eye. On the contrary, the pupils are naturally expanded to admit the rays of dark, so necessary to vision, and contracted to exclude the rays of light.

Viewed from this standpoint, which I believe to be the true one, there is no more mystery in bees seeing in the dark than by daylight; and we can now sensibly understand how the queen can easily see to place the eggs opposite each other, and how all the operations of the hive are carried on minus X-rays, blind-asylums, etc.

HARD WATER AND PURE WATER (page 364).

A. I. R. thinks soft water was the drink intended by God for man. Not so, I think, or some natural provision might have been made for rendering it soft without making expensive machinery for softening a necessity, thus denying the intended blessing to the poor, and giving to the rich. No, I think the plan must have been that man should drink water both hard and soft. I believe much depends on the person and the surroundings. One brought up from infancy on soft water might possibly find a sudden change to hard water injurious, and *vice versa*. Of course, muddy, impure, and stagnant water should be cleansed before use.

I have known four persons upward of one hundred years of age, all living in one county, and comparatively near each other, not related in any way. The eldest was 126, the next 108, the next 103, the youngest (who died recently, 100 years and one month of age) was about and transacting business twenty minutes before death occurred. One person is now living there who, in one or two years, if spared, will reach the century mark, and is in fairly good health. Others have died there during the past winter who were upward of ninety years of age. The section is remarkable for longevity, and this in a region where hard water is the rule and soft water a rarity. Now, I don't say that hard water has done this, but certainly it has not shortened life, nor soft water been a factor in lengthening it.

The old Mosaic law forbade the eating of swine, but not the drinking of hard water. I believe the annual consumption of thousands of tons of scrofula-laden pork is responsible for more disease in the human family than all of the hard water drank from Adam's time to the present.

I have already quoted that it is a fearful thing to teach, and I believe that one who undertakes to teach another what he shall eat or drink takes upon himself a grave responsibility. It has been truthfully said that what is meat for one is poison for another. I have this day sent to A. I. R. a clipping from the *National Druggist*, stating that distilled water is a dangerous protoplasmic poison.

Bradford, N. Y.

[Years ago, when we were selling bees by the pound, we used almost invariably cages made of green wire cloth. At the time, I know it was said that such wire cloth should not be used ; but we could never see that it had the least bad effect on the bees; and I was going to say we put up hundreds of pounds of bees in just such cages. If the green paint of the wire cloth became so dry as to pulverize so the bees utilized the actual Paris green, it might kill them, of course; but so far from that, if it did any thing it flaked off in small pieces.

With regard to the question of bees seeing in the dark, I do not see that I changed front. A little further on, in the same article, the same writer, whose opinions I indorsed, says : "Science will probably demonstrate the fact that bees have a set of eyes that can look at the most intense light, without any inconvenience, while other eye-facets see only at short range."—ED.]

FOUL-BROOD GERMS.

The Difference Between Spores and Bacilli: How One May Turn into the Other, and Vice Versa.

BY THOS. WM. COWAN.

I have read the correspondence respecting the destruction of foul-brood germs contained in honey, by means of boiling, and it appears to me that, when giving advice with respect to such a destructive enemy as foul brood, we can not be too cautious, and had better err on the side of safety than the reverse.

From the promiscuous manner in which many talk about microbes, bacilli, spores, or germs, it is quite evident that they do not realize that a very great difference exists between them; and conditions that will be destructive of the one may not have the slightest effect on the others. In respect to the particular organism with which we have to deal in foul brood ; viz., *Bacillus alvei*, we have to contend with it in two different forms and stages of life, in one of which the vitality of the organism is easily destroyed; while in the other the same organism, but under a different form, is capable of retaining life, and germinating into the condition of the previous stage, even after what would appear the most damaging influences, such as long lapse of time, drying, heat, cold, and chemical re-agents. The bacillus condition is the first stage of active life of this organism; and it remains in this state, splitting and multiplying as long as it has nutrient material to live upon and other conditions are favorable. A bacillus is rod-shaped, and when, in process of time, it has attained full growth, it splits in two, each of these taking up an independent existence, and going through the same process; and as it has been shown that as many as two generations can be raised within an hour, and as the same rate of progression can be kept up by each individual in suitable nutrient media it is not astonishing that foul brood spreads rapidly.

Now, while in this bacillus stage it is not difficult to kill the organism (a temperature under 160° F. will do it), and there are a number of chemical re-agents which even in great dilution will destroy bacilli. It is, however, very different in the subsequent stage of existence of this microbe. When the bacilli, or rods, have multiplied to such an extent as to exhaust all the nutriment upon which they were feeding, or come in contact with surroundings inimical to their active existence, the rods gradually turn into spores. At a certain point of the rod a bright speck appears, which gradually enlarges at the expense of the protoplasm in the rod, until in its fully developed state it assumes an oval shape. The sheath swells, and the bacillus looks much thickened; then the sheath breaks, and the spore becomes free. Now, it is when the rods have become spores that the danger arises, because it is very difficult to make many understand the great difference between them and bacilli. They are analogous to seeds of plants, although they differ from these in possessing greater vitality. Spores retain the power to germinate into bacilli after the lapse of long periods; and Dr. Klein, one of our great authorities, says, "There is no reason to assume that these periods have any limit." We have, at any rate, had ample evidence in our own experience to show that spores have retained their vitality for many years. These spores are not only capable of germinating into bacilli after a long period of time, but will endure heat, cold, drying, and chemical re-agents—influences that would be destructive to bacilli themselves. The temperature of boiling water does not destroy them unless considerably prolonged, although a very much lower temperature, as I have already stated will kill bacilli. If we had to do with bacilli only, in every case bringing up the temperature to 212° F. would be amply sufficient; but with spores it is different. A few minutes' boiling will destroy some, because all the spores have not the same degree of vitality; and in this they resemble seeds of plants. It is well known that some seeds will germinate much sooner than others, and some will not germinate at all. Experiment has shown that, to destroy all the spores, prolonged boiling is necessary, or they must be subjected to a higher temperature, such as is obtained from steam under pressure. Spores are unable to withstand steam, even for a few minutes, at a temperature of 212° F.; but this could not be applied to honey, as the spores would have to be separated before they could be acted upon by the steam. I have had frequent demonstrations that many do not really understand what boiling, from a scientist's point of view, is, and that is why the results are frequently so different. They are content to think that the liquid is boiling if they see it bubbling, whereas the bulk of it may be several degrees below the boiling-point if stirred and thoroughly mixed, and, of course, the larger the quantity the longer it takes to raise the whole mass to the boiling temperature. Experience has shown that it is not safe in every case to depend upon 10 or 15 minutes' boiling. Several boilings would be better, but not so convenient to the ordinary bee-keeper. The rationale of this is that, at the first boiling, all the developed bacilli are destroyed; then suppose a nutrient medium and other favorable conditions to exist in the honey, the unaffected spores would germinate into bacilli, and could be destroyed in the next boiling. A third and even a fourth boiling might be necessary to destroy the remainder. Failing this method of procedure, it is safer, with our present knowledge of the behavior of spores, and taking into consideration the appliances at the command of the average bee-keeper, to insist on prolonged boiling.

April 18, 1899.

[Mr Cowan did not go on to tell of his experiments to prove his statements above. These statements, coming as they do, from, I verily believe, our best authority on the subject in hand, ought to settle the matter that it is not safe to feed diseased honey back to bees that has been boiled only 15 minutes.

Instead of recommending three hours' boiling, I shall recommend an hour's boiling at three different times. After all, it seems to me utter folly to extract honey from foul-broody combs because of the great danger in the process. It is far better to burn them entire—frames, brood, honey, and all—and then bury the ashes where neither plow nor spade will ever touch them. I would err, if at all, on the safe side.—Ed.]

* * *

RAMBLE 166.

Portland, Oregon.

BY RAMBLER.

Between showers I made a very pleasant call upon Mr. Buell Lamberson, who is proprietor of a large store for the sale of seeds, agricultural implements, and bee-keepers' supplies. Here I found a full line of the Root supplies, and Mr. Lamberson is headquarters in that line for Oregon and Washington, and has sold as high as two carloads in one season. He said that bee-keepers were well pleased with the supplies, and that the Root hive was preferred to the home-made; but owing to the cheapness of lumber it is a dollars-and-cents argument that makes the home-made Oregon hive take the lead. Although there is a healthful trade in supplies, Oregon does not produce a great amount of honey.

A very good way to diagnose the healthfulness of the honey production and bee business generally in any State or location is to find out how many carloads are shipped out. If, instead of shipping out, there are carloads shipped in, the industry is not upon a very strong commercial footing, and that is the present condition in Oregon.

California honey is in evidence in many of the groceries, both comb and extracted. The latter is put up in neat screw-top tumblers with a piece of comb honey surrounded with a liquid, presumably honey, and perhaps it is. Honey from Utah and Nevada also finds its way into this portion of the country.

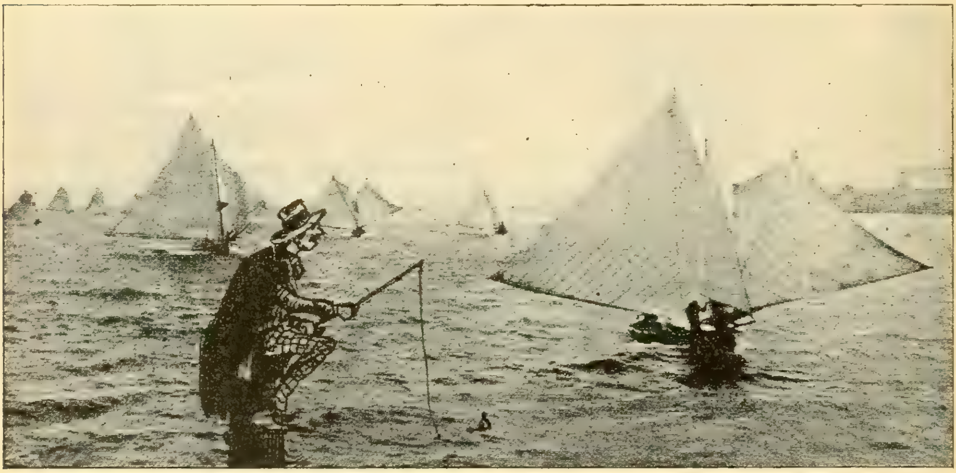
While I give an occasional glance from my fifth-story window I realize that I am in one of the most thriving cities of my native land. The population is over 80,000. It is a port of entry for the largest ocean vessels, and the various craft plying on the river-front present a busy scene. The trade in grain, lumber, wool, etc., is immense.

At the date of my visit the city was shorn of much of its beauty, for the falling leaves left the many trees unadorned. The moist and sticky condition of the streets was not pleasant; but being used to dry streets and plenty of dust and evergreen trees in California, the change seemed agreeable. When the clouds lifted enough, Mount Hood appeared in the distance with its pure white snow-clad peak. It is the boast of the good people of Portland that five of these snow-clad peaks can be seen at all times of the year when the weather is fair. I barely saw Mt. Hood, which proves that the weather was very unfair to me.

I spent a very agreeable Sunday in Portland. The Congregational church, where I attended, was well filled, and with as fine an array of fashionable fall bonnets as can be anywhere found. But the most agreeable service was at the Y. M. C. A. in the afternoon. There were a few bald pates, but not a bonnet; and let me tell you Portland has a Y. M. C. A. that is worthy of emulation. It has 1000 members. Surely such a body of well-meaning moral young men is not without a leavening influence upon the city. I might tell you much more about this thriving city, but I must hasten along to the State of Washington.

I first placed my feet on the soil of this great State by running out on the electric-car line from Portland to the Columbia River, six miles, crossed the ferry, and here we are in Vancouver.

Uncle Sam has a military post established here, and it is the army headquarters for the Northwest. Four companies of the Eighth California Volunteers were located here, and there were soldiers at every turn. When passing up the street I saw a corporal and a private in conversation on the street-curbing; and, stepping up to the corporal, I slapped him on the shoulder, and exclaimed, "Hello, Will R——!" I really believe the corporal would not have been more astonished had I arisen from the muddy street before him. "Why—why, Mr. Rambler, where in time did you come from? Did you rain down?" The corporal was one of our California boys with whom I had a slight acquaintance, and I was very glad to surprise him and tell him about the folks at home. We had no more than passed the compliments of the day before the corporal gave the other soldier and myself a cordial invitation to take a drink. There was a saloon handy, and we entered; but I told my friend that I did not drink. He tried to impress me with the idea that there is a vast amount of healthfulness in a glass of beer, but I could not see it in that light, and touched not the vile stuff.



The corporal then escorted me out to the parade-ground, the officers' quarters, the rifle-range, the barracks, and—into the army canteen. Here the corporal, having forgotten my refusal to drink beer with him, or else thinking I needed something stronger, gave me an invitation to take a whisky cobbler. Well, he cobbled and I didn't. Several soldiers were patronizing the canteen, and I judged that the name was far too respectable for the place. I regretted that Uncle Samuel was engaged in such a disreputable business. In talking with the corporal about the matter he acknowledged that there was a drinking element in the army, and that they had rough times with them sometimes, and that matters would be more peaceable if the canteen were banished. Let us hope that Uncle Sam will come to his senses ere long, and suppress the evil. This was my first and only experience with the army canteen, and I hope it is the last.

A great majority of your readers are located in the Eastern States, and I am wondering how many of them ever give any thing more than a passing thought to this portion of our country, or have much of an idea of its extent and resources. The Columbia River, which I have crossed twice to-day in my short trip to and from Vancouver, with its tributaries, drains an immense country; and in point of scenery it is one of the grandest rivers on the continent. For its watershed it has Washington, Eastern Oregon, Idaho, and a portion of Montana and of British Columbia. A good share of this 600,000 square miles is undeveloped; and again I wish to say to the weary toiler on the stony hillsides of New England that 20 acres here will give better results than 100 there. Young man, if you have any enterprise in you, come west.

Mr. Lamberson gave me the names of a few of the local bee-keepers; but when I undertook to hunt them up I found this one had moved, that one had sold his bees, and the other one had gone fishing, or, in other words, given up bees for salmon-fishing, which is an immense business on the Columbia River. A fleet of fishing-smacks makes such a pretty appearance that I wouldn't mind joining myself to them for a season. Fishing and honey-production would not be a bad combination. It makes a great difference, though, what kind of fish we are after. I knew a bee-keeper back east who had a sort of dry-land fishing experience. Her name was Fish. He bobbed for her, tried to reel her in, paid out and tackled; but the fish sulked, the lines got tangled, and the bee-keeper made a dismal failure of it. Come west, young man; here is the right kind, and fishing that you can tie to.

We think we are doing the appropriate thing in Southern California when we have a bee-keeper by the name of Honey; but here in the northwest portion of Oregon there is a town named Apiary; also a man bearing the same name. I wanted to get out to that place to find if they were properly joined to a bee-apiary; but if you had seen the water drip off my hat-brim you'd have given it up just as I did. I was fortunate, though, to stumble upon an honest German bee-keeper who seemed willing to impart information upon the resources of the country, and we had quite a little convention.

"Yes, I vas a bee-keeper," said he; "I lifes out in Yamhill Co. I hafs one liddle ranch of sixdy acres. I hafs brunes, cherries, vruits all kindts, unt I hafs veat; my ranch vas brosberous, so much more so than any oder ranch."

"But," asked I, "did your bees prosper?"

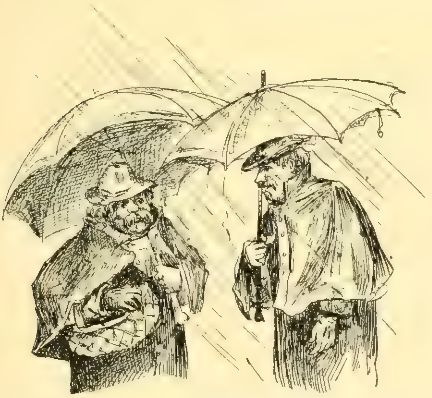
"I dells you; my veat vas the best yieldt in Yamhill Co. Eferybody ven they saw dot veat they shoost stopped in der middle of der dracks, unt said it vas shoost vonderful."

"Was your wheat-field the only one in that vicinity?" said I.

"No, mine frient; eferybody has veat; but you must know how to raise veat. It vas my blan to blou deep; den ven de veat gomes a leedle up I puts a harrow ofer it. Eferybody say dot olt Tuchman cot crazy mit his head, but I ton't. It is so vet here somedimes dot de verns shoke de veat; blou deep, unt harrow, unt de veat crows like eferydings, unt de verns don't crow."

"But how about your bees?" asked I again.

"Yes, dose pees. I had ofer one huntret svarms ven I lifed in Michigan. I had somedimes seex tousant pounts of honeys. I made some moneys. Michigan vas one goot State for pees."



"But how is it here in Oregon for bees?" asked I.

"My frient, it is too vet; somedimes the pees make goot zweet honeys, but it is too vet, too vet. Ven I lifed in Michigan I could prag apout my pees all tay long, und my vrow could prag all night, so ve praged all de time apout de pees; but ve prag here apout our veat unt our brunes. No, it vas too vet here to prag apout pees."

I regretted very much that I could not meet a bee-keeper here who could "prag" about his bees. I think there are plenty of them, and I shall have to try Oregon again when the weather is not so wet.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE

"PROOF OF THE PUDDING IN THE EATING."

Question.—I use the Gallup frames, or at least supposed I was using that frame, till I read what Mr. Chas. Dadant has to say on pages 257 and 258 of GLEANINGS for April 1. Since reading his article I am not so sure what kind of frame I do have. The frame I have always called the Gallup is 10¾×10¾ inches, inside measure, which figures out 115¾ square inches of comb to the frame. And as "Langstroth on the Hive and Honey-bee," as revised by Chas. Dadant and Son, gives, on page 40 of that book, 55 as the correct number of cells to the square inch of comb, I figure that one of my combs contains 6366 cells in place of the 4600 given on page 258 of GLEANINGS; while nine such frames would give 57,294 cells instead of 41,400, as Mr. Dadant gives, or more than one-third more than he allows. What is the trouble? Am I not using the Gallup frame? or does Mr. Dadant make a mistake in figuring?

Answer.—If the questioner has "The Bee-keepers' Guide, or Manual of the Apiary," by A. J. Cook, and will turn to page 191, he will find the dimensions of all of the frames in general use, with cuts of the same. The size of the Gallup frame, as there given, is 11¼×11¼ inches, outside measure, and as Prof. Cook says such frames are made of stuff ¼ inch thick, it will be seen that the questioner has given the right inside dimensions of the Gallup frame, on the authority of Prof. Cook, and as Gallup used to give it, which is the same I use. I can not see any flaw in the questioner's figures, hence can only come to the conclusion that Bro. Dadant is ignorant regarding the size of the Gallup frame, or thought to make a stronger case by being unfair with what he placed before the readers of this journal. I can hardly believe the former, and would suppose that he would realize that the latter would only tend to injure his case, for such a course gives credence to the idea that all of the rest of his arguments and statements may be as erroneous as this one is; and, if so, the whole of his logic is based on false premises, which can not give stability to the structure he is trying to build. Mr. Dadant tells us he "noticed that a queen lays about six eggs a minute, 360 an hour, and 3600 in 10 hours, 75,000 in 21 days." This figuring is about on a par with that about the Gallup frame. If a queen lays six eggs in a minute, 360 an hour, 3600 in 10 hours, why does she not lay 8640 in 24 hours and 181,440 in 21 days? Will Mr. Dadant tell us? An eleven-frame Quinby hive would be as poor for any queen laying at the rate of 360 eggs an hour, right along, as Bro. D. tries to make out that the nine-frame Gallup is for the average queen. But all of this figuring regarding how many eggs a queen *can* lay, and then basing the size of the brood-chamber on such egg-laying powers, amounts to very little. The proposition before the practical apiarist is not *how many eggs a queen can lay*, but *what size of brood-chamber will give me the best results in surplus comb honey?* And how can this point be ascertained? Very largely through the average yields during the past, where reports have been given by those using the large frames in a large hive without any contraction, and those using small hives, or large frames with contraction. Bro. Dadant gives an instance where a colony in a large hive gave him 160 lbs. of comb honey which he sold at 27 cents a pound, the result from which would be $43.20.

In back volumes of the bee-papers can be found my report of a colony having but nine Gallup frames which gave 309 lbs. of section honey, and plenty in the hive for winter. This honey was sold for 25 cents per pound, the result from which was $77.25. Does this not show that the "proof of the pudding" lies with the small hive? But I hear some one saying that "one swallow does not make a summer." Very good. Bro. D. says his neighbor called him a "braggart" because he claimed that his bees gathered 100 lbs. or more per colony. And some of my bee-keeping neighbors would not believe that a whole apiary gave an average yield of 166⅔, nearly all of which was section honey, till they came and saw my shop so crowded with beautiful combs of honey that the floor had to be propped to keep it from breaking down, when I used a hive only about two-thirds in size of brood-chamber as compared with theirs. But leaving Bro. Dadant and myself "out of the race," who have given the best reports during the past—those using the large frames and hives without contraction, or those using the small hives or the contraction plan? I have been a careful reader of our bee-papers during the past thirty years; and, unless I have read in vain, the majority of the good to large yields of comb-honey reports have come from those using small hives, or those contracting the brood-chamber during the honey-flow down to that used by those recommending small hives. It was just these reports that caused me, *unwillingly*, to cut my twelve-frame Gallup hive down to a nine-frame hive. If the large hives are so much better than the small, it seems to me it is about time they showed their superiority by giving better average reports than the small ones; and until they do, I shall feel that I am excusable in keeping on in the beaten path of success; and trying to make it appear that Doolittle "is always watching his sixty hives" when my colonies have been numbering from 120 to 200 each year since father's death, does not add anything toward the large-hive side. During the five years I lifted and cared for father, every time he was moved at all, I had to let my numbers go down to what I could care for, and care for father too, and the 60 would be about right for those years.

Then I see that better wintering comes in as a recommendation for the large hive. But the one who is familiar with the past knows that whole apiaries, where the large hives and frames were used, have been swept away by "our wintering troubles," and the proprietors gone out and bought bees, which wintered in box hives, to stock up with again.

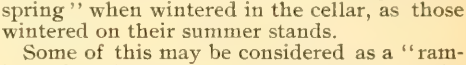
That report, dated Feb. 15, reading, "We have just had a good day for the bees. The colonies are strong. There is next to no loss," fitted my case exactly at that time, except the "we have just had a good day for the bees." My bees had their last flight Nov. 10, 1898; and after that there was not a single "good day for the bees" till April 12, 1899, and colonies that were strong and fine Feb. 15 were so loaded with excrement on April 12 that their strength and vitality were not sufficient to fly to void it, the result of which is that eight out of the seventeen colonies wintered out are "little good," while nine are from fair to strong.

I have never been able to understand why those living in a locality where bees can fly every four to six weeks should begin to tell of their losses after three or four weeks of cold weather, when our bees have to hold out during three to five months' steady confinement, with the mercury often down from 5 to 25 degrees below zero for days at a time; and as they more often come through such winters in good condition than otherwise, in the nine-frame Gallup hive, I may be excusable for thinking that the size of the brood-chamber has little to do with the wintering of bees. If I lived where bees could fly once in six weeks I am sure I should feel as Bro. Dadant does, that "the bees were not as healthy in the spring" when wintered in the cellar, as those wintered on their summer stands.

Some of this may be considered as a "ramble," for I have not stuck very closely to the question. My excuse is, that, after I received the question, I read Bro. Dadant's article over a second time, so allowed a few thoughts on it to come in, outside of what the questioner really expected from me.

Borodino, N. Y., April 14.

[Now look out for the Dadants.—Ed.]



HEADS OF GRAIN FROM DIFFERENT FIELDS

OUTLOOK FOR FLORIDA.

The outlook for honey in West Florida is not very promising. Just as the titi bloom was opening it was destroyed by the zero freeze. The Le Conte pear-trees were in bud, which was turned brown, and fell off.

These trees bloomed again in about a month, and on some trees a small amount of fruit set. Much of this will probably fall off. The Kiefer pear-trees are later in blooming, and do not appear to have been injured in the least, and have set fruit abandantly.

The loss of the early bloom has been a great detriment to apiaries, and those that I have seen are weak, and some colonies starved, while others will barely pull through until the palmettos bloom. In some localities the surplus is gathered from tupelo.

The spring has been rough. When the sun was shining there would be a cool cutting wind. I saw some beans to-day that bore evidence of a slight visit from Jack Frost. Newly planted trees have done well, and a few orange and fig trees that have been cut down are sending up shoots from the roots.

MRS. L. HARRISON.

St. Andrews Bay, Fla., April 4.

THAT HORSE-STINGING EPISODE; CRUELTY TO ANIMALS.

In the name of our God, are you going to sit there in enlightened Ohio and publish such letters as that from Geo. L. Vinal, of Charlton, Mass., page 272, April 1, without one word of protest against such brutal inhumanity, such treatment of our silent friend, the noble horse? To place a swarm of bees where they would sting a horse for twenty minutes is simply hellish; and no man with a spark of humanity within him would for an instant entertain such a thought. Could the bees have been turned on the tormentor of the faithful old horse, it would have been a pleasing feature of the program. A great society for the prosecution of such offenders has headquarters in Boston. I shall write there at once, and see what can be done in the matter.

H. M. JAMESON.

Corona, Cal., Apr. 10.

[I will explain to our readers that articles from old correspondents are not read by the editor in manuscript, but are read in galley-proof, at which time the headings or footnotes are dictated; but it seems the communication from Mr. Vinal did not come before me until it appeared in page form; and as that form was ready for press I did not enter the protest that I really felt in my heart. If I had it to do over I would hold the form back an hour or two for the sake of a footnote. But Mr. Vinal is an old and valued correspondent.

Let us turn back to page 272, April 1, and read the item again. If I mistake not, Mr. Vinal is an "M. D." Having had a horse accidentally stung once, and seeing no apparent loss of bees, it appears that, from the standpoint of a physician and of a scientist, and solely in the interest of science, he desired to pursue the investigation a little further. There was only one thing to do, and that was to get another horse and harrow up a lot of bees. This seems cruel, and so it was; but, if I mistake not, the Humane Society sometimes allows certain experiments to be conducted, in the interests of science, that they would not allow where mere curiosity is the only motive. But the horse that Mr. Vinal refers to was evidently not killed, as he did not allow it to be stung severely enough to cause death.

Referring again to Mr. Vinal's experiment, I am of the opinion that it would prove of but little value. When there is a general stinging of this kind, one generally imagines there are thousands of bees engaged in the operation, sticking in their little jabbers. One time I was fearfully stung, and it seemed to me that at least 500 bees must have punctured my epidermis; but actually there were less than a dozen stings. I should say, then, that probably not over twenty-five bees stung the horse that Mr. Vinal refers to; and the fact that the colony from which these bees came pursued their normal course, as before, would indicate nothing, for the loss of twenty-five bees could not in any way really affect the prosperity of a strong colony.

I hardly think it necessary to go to the extreme of seeking Mr. Vinal's arrest, for he is a gentleman, and a man of high moral standing. A mere protest would accomplish ten times more than an arrest.—ED.]

FEEDING AFTER FRUIT-BLOOM.

Last year (I've had only a few bees two years) my bees came out in the spring with lots of stores, and they raised brood in abundance until after fruit-bloom, when nearly all the brood-frames were full; but at the beginning of clover harvest (along about the 1st of June) they had practically no brood. I want to know if I should feed after fruit-bloom to keep the combs full of brood until the clover-flow begins.

THOS. S. WORK.

Clarington, Pa., Apr. 7.

[Conditions and circumstances should govern in all cases. Last season, if you expected a flow you should have fed soon after fruit-bloom. The fact that brood-rearing had stopped was a pretty good indication that bees were verging toward starvation; and as a result they curtailed their brood-rearing. —ED.]

SOMERFORD'S METHOD OF FORMING NUCLEI; A CAUTION.

Friend Root:—In regard to the method of increase given by W. W. Somerford, page 260, you had better caution your readers to be *very* careful in warm weather, for I have seen great damage done, and many nuclei utterly ruined, by melting down when stopped up as friend Somerford recommends. Especially is this the case if the nuclei are more than ordinarily strong. I have made hundreds of increase in the way he advises, and it is a good one, but there are much better ones.

We had heavy snow one week ago, and yesterday we had a fall of over a foot—very backward spring, and many bees are dead.

E. T. FLANAGAN.

Belleville, Ill., Apr. 4.

[Your caution is timely. In any case, one must use his judgment.—ED.]

EDITORIAL
BY
E. R. ROOT

SINCE about the 15th of April this has been almost a model spring. It is still warm and nice, and fruit-bloom is just opening up.

WE just received a dozen queens by mail, direct from Italy. Ten of them were alive, but one of this number was feeble, and may not survive. We are glad to say now that getting queens direct from Italy by mail is a success. But we prepare the cages ourselves with sealed honey and Good candy; and all the breeders in Italy have to do is to put in the bees and queens, put stamps on them, and they are ready, for our address is already printed on the cover. In about two weeks more we shall be getting another consignment, and after that more queens as orders may require.

A PROMINENT bee-keeper writes that in his vicinity the winter losses have been almost as severe as during the winter of 1881, which was the most severe that was ever recorded. Fortunately this condition is by no means general. Owing to the very favorable spring thus far, and the fact that fruit-bloom is just out, brood-rearing is going on at a very rapid pace at our home apiary. Many of the colonies are weak; but if they can have a few more days like this they will nearly recover what they lost during the severe cold spell. New honey is coming in, but very slowly. As soon as fruit-bloom is out a little more, we shall, of course, expect a little more honey.

SHED APIARIES IN CUBA; EXPENSE OF ROOFED APIARIES.

AT the request of a subscriber we reproduce elsewhere the two engravings that appeared in our issue for April 15, 1895, showing the Cuban apiaries operated by A. W. Osburn, some 700 hives, all under one roof, having an area of something like 17,000 square feet. The main shed is 300 feet long, and is crossed by two others of about the same length. Mr. Osburn's average crop of honey at that time was something like 60,000 pounds annually; and it was his intention to run the amount up to a quarter of a million. Somewhere about a year ago he died, and, as our readers know, we have had one article already from his son, who writes under the *nom de plume* of A. W. Osburn's son.

As there has been so much interest manifested in Cuba of late, it seems it is proper to give our readers an idea of the expense involved in putting up an apiary in that hot climate. If I understand it rightly, it is almost a matter of necessity to put the hives under a shed, and the shed itself is where the expense comes in.

In order to make the business pay, as the price of honey is so low there, one has to produce the honey on a very extensive scale.

The illustrations referred to elsewhere will give one an idea of the magnitude of the business carried on by Mr. Osburn. Whether these sheds remain after the cruel ravages of war, is doubtful; and while the locality may still be good when conditions have readjusted themselves, one should understand that it would require capital to carry on bee-keeping in that climate.

NO-WALL FOUNDATION.

IN the *Bee-keepers' Review* for April Mr. T. F. Bingham is quoted as saying:

> I take a little modest pride in the illustrations, comments, and promises given on page 218 of the current volume of GLEANINGS. I say this because the Michigan bee convention, held at Mt. Pleasant in 1896, raised the money for the making of the first machine that would make no-wall foundation. GLEANINGS says it does not "know for sure just what shape the ideal foundation will take." In this connection it is worth while to notice that not one adverse report has ever been made against the no-wall foundation. To be sure, it has not been extensively used in many apiaries; but it has realized the expectations of its designers.

Either I misunderstand Mr. Bingham or else he has missed the whole pith of the article published in GLEANINGS on page 218. I did not, as the article shows, in any way indorse the no-wall foundation. If there was any point that I tried to make clear, it was that a *wall* was an important desideratum; that a thin base was another one equally important. A no-wall foundation with bases as thin as bees make them can not be milled, because it would pull to pieces in making. Accordingly, it has to have base made just enough heavier to permit of its being manufactured. This makes, of necessity, a heavy base, comparatively, but no heavier than in some of the grades of super foundation with walls. The photos, as I have shown, clearly illustrated that, no matter what the thickness of the wall, if the base only is thin, there will be a no-gob foundation, for the wall is almost invariably thinned to natural thickness. It is possible to make a thin-base foundation with the proper appliances, *providing there is wall enough* to support the sheet while it is being milled, or handled in the plates. The difficulty of making no-wall foundation, even with a base as thin as the bees make it, is a mechanical one. Aside from that it would have a decided tendency to warp and stretch in the hive. Even making it as they did with a thick base, comparatively speaking, it had a tendency to warp in the hive, as was shown a year ago in the *Review*. It is possible that Mr. Bingham means that we are both working toward a no-gob comb honey. If that is his idea, we are moving toward the same goal, but over different routes.

EXTRA FANCY HONEY IN BEEWAY SECTIONS.

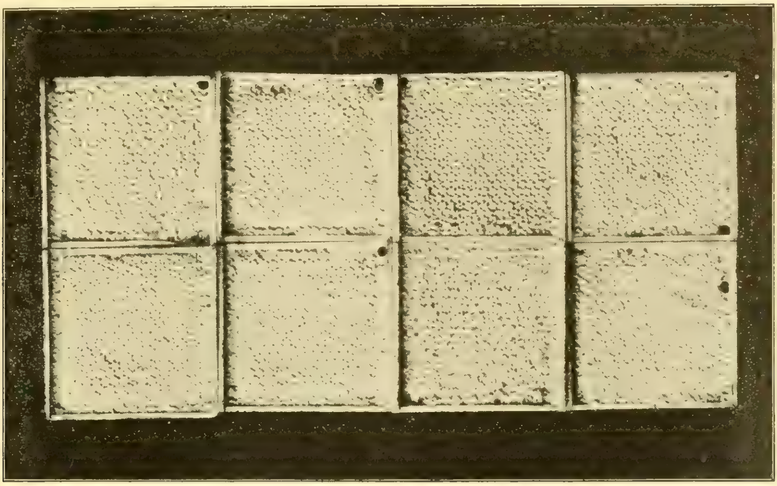
IN the *Canadian Bee Journal* for March, p. 497, appears an illustration of some very fine honey in beeway sections. We have secured the loan of this cut, and herewith present the illustration. This honey was produced, if I mistake not, in one-piece sections; but instead of having ordinary beeways the openings extended clear to the sides, the same as in the four-piece section. This gives a little freer communication up and down, doubtless resulting in a little better filling, as shown. These sections were taken in a super with section-holders having open tops (no top-bars), and the separators 4½ in. wide without slats.

The specimens of honey shown were not an average, of course, but probably the best there were to be found in that particular lot. I have shown one or two specimens of honey in plain sections, that were better than the average. But all such cuts are apt to be misleading to a certain class who gather the impression they will always get just such honey if it is produced in such appliances. On the other hand, there is another class, old practical bee-keepers, who know it is not possible to secure that degree of perfection, on the average, with any appliances that were ever devised, or with any strain of bees.

But it is, nevertheless, true that the *design* of the fixtures has something to do with the appearance of the honey. For instance, I believe that the full openings in the sections above shown have a tendency to make more even and fuller combs. The section shown on page 82, Feb. 1, 1898, shows a nice comb in the ordinary one-piece section having the *ordinary beeway*. This narrowing-up of the opening has a tendency to round or bevel the combs at the corners as there shown. Partly for this reason, and partly on other grounds, there are many who prefer the *four-piece* sections with top and bottom-bar of the same width throughout.

A better beeway section, in my judgment, is the one that is not only open full width, top and bottom, but is open part way down and up the sides. The demand for these seems to be growing. The freer the lateral communication, the better will be the filling of the section. With such a section, an ordinary slatted separator without cleats ought to secure just exactly as nice honey as in a plain section with slatted separator with cleats.

I reiterate, as I have several times before, that, *under like conditions*, plain sections will be filled no better than beeway sections; and if there are any of my remarks that can be construed otherwise, I desire to repudiate any such construction as emphatically as I know how; or, to put it another way, beeway sections may be made so that the conditions, so far as freer communications are concerned, will be precisely the same as the conditions under which plain sections are supposed to be filled. The illustration taken from the *Canadian Bee Journal* shows a set of sections that were produced under *a part* of the conditions we desire to secure when producing in plain sections. I do not believe that combs in any ordinary one-piece section with the *old-style openings* can be produced as perfect and as pretty as there shown. If any one has ever accomplished the feat, let him have a photo of them taken, at our expense, and I will present it to the readers of our journal.



FANCY COMB HONEY IN BEE-WAY SECTIONS.

"SUPPLY-DEALING EDITORS."

THE heading above is taken as a text from an editorial paragraph by Doolittle, in the *Progressive Bee-keeper*. I did not refer to the matter in the way of a reply, at the time, because I thought in view of the fact of our being interested in supplies we should keep still; but as Mr. Hutchinson takes up the matter, and discusses it a little further, perhaps I ought to say something in the way, not so much as a defense as an explanation.

Mr. Doolittle, in the first place, in the *Progressive*, raised a protest against certain so-called "crazes" now going on in the bee-papers; that the pushing of plain sections and separators was ill advised, and that they were on a par with the reversible-frame excitement, deep-cell comb foundation, etc. Mr. Hutchinson, in commenting on this, is of the opinion that Mr. Doolittle's caution is timely. He believes that, while GLEANINGS has pushed new things too hard, both the *Progressive* and the *Canadian Bee Journal* have gone to the other extreme in condemning them—so much so that no one would even give them a trial. He further believes that an editor ought to be very careful how he allows his journal to boom a new thing—yes, or condemn it till repeated tests under varying conditions have fully determined its value. In general, this is good doctrine. I have preached it myself, and I try to practice it, as I shall show. He then says :

> I am willing to admit, and have admitted, my *belief* that the use of plain sections and fence separators leads to a more perfect filling of the sections. I think that any one who is not prejudiced will admit this upon seeing a crop of honey thus produced. If this is a fact some may ask, what is the objection to "booming" them? I think that there ought to be some further attempt to discover exactly what it *is* that causes the more perfect filling. The fact that the section is the same width all around can not possibly have any bearing upon the subject. It can make no difference whether the side-pieces of the sections extend out and meet the separators, or pieces on the separators extend out and meet the sections. One is exactly equal to the other. It seems as though the freer communication afforded by the open separators was the only point left. In opposition to this view, Mr. Daggitt recently called attention to the fact that sections filled without the use of any separators whatever were no better filled, if as well, than those where separators were used.

Both Mr. Doolittle and Mr. Hutchinson have, without knowing all the facts, taken a natural view ; and if I were in their shoes I would doultless think and write as they do, and if they had been in our shoes they would have done as we have done. But there are some things that they have either lost sight of or else have not fully considered.

In the first place, Mr. Doolittle speaks of the new fence and plain sections as a "craze," and as if they were new things, and would probably be abandoned like reversible frames. If they had not been used for a period of something like ten years by three or four prominent bee-keepers, in more or less modified forms, the statement might be correct ; but fence separators are an old thing. I do not in any sense regard them as an experiment. Plain sections have been used by Mr. Aspinwall for about ten years. Fence separators have been used by Miles Morton for about the same length of time. The same general scheme was advocated years ago by that practical bee-keeper, Mr. B. Taylor, by Walter S. Pouder, and by others. The same goods as we make them were tested last season by a good many ; and out of all the hundreds and hundreds who have begun to adopt them, there are only three or four, possibly more, who are not entirely satisfied. This is remarkable when we consider the many favorable reports that have come in.

It will be remembered that thick top-bars were an old thing, and had been used for years by J. B. Hall and others, long before Dr. Miller and I began to push them into prominence ; and even Doolittle,* at that time, opposed them, although he is now a user and advocate of them. What is more, they are used and recommended by nearly all of the bee-keepers.

Self-spacing Hoffman frames were another new old thing. They had been used some twelve years previously, and now there are hundreds of bee-keepers who will swear by them. I do not and never did recommend them for every one; but there are many who would never use any thing else.

It was GLEANINGS that began to champion the dovetailed (or, more correctly speaking, the lock) corner in hives, another old device; and now hives having that feature are sold almost exclusively by us and very largely by our competitors. In hot climates they stand the test.

I believe I have seldom helped push into prominence, or tried to do so, something that had not been previously tested by practical bee-keepers years before; and in going on that rule GLEANINGS has made very few mistakes, comparatively. Nearly every thing she has advocated has come to stay, or it appears that way. I do not say this with any boasting spirit, but because I believe it is the truth.

Drawn foundation is referred to as having been advocated by myself, and finally having been designated as a failure in one way, and perhaps it was. It was Doolittle, as well as myself, who helped push this forward, and Doolittle was all right, even if it was a craze. It cost Mr. Weed and us something like $2000 to make the necessary experiments and the necessary dies. We disposed of, all told, perhaps 200 lbs. of the product. Certainly this small amount, much of which was given away, distributed among a few bee-keepers, could have cost them little or nothing. So long as the supply-manufacturer and inventor in this case, were the loser, I can not see how bee-keepers lost by this venture. On the other hand, they gained a lot of valuable information, and we certainly feel that we have; for out of it will come and has come the development of the new thin-base foundation.

The reversing idea has been abandoned, it is true; but I believe there is a good deal in it yet. We sold very few reversible frames, yet many who tried them are very much pleased with them. I remember particularly the case of Mr. Chalon Fowls, who, I believe, is still using them. But suppose that this is a device that was abandoned. In order to make progress in any branch of industry, some things have to be tried and discarded. In the apicultural world it would be strange if something did not have to be thrown overboard.

Automatic swarming-devices not mentioned by Messrs. Hutchinson and Doolittle, were a good deal talked about at one time; but no one really pushed them; and after perhaps two or three dozen had been sold they simply dropped out of sight. The Simplicity hive was abandoned as another example; but it had a run of about fifteen years, and those hives are still good where used. If we have something a good deal better it would have been folly to continue making new hives with beveled edges, because there are new generations of bee-keepers coming up, who, of course, want the better things.

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* Perhaps the pushing of tall sections, another new old thing, might be called a craze. If so, I got my inspiration from Doolittle, Capt. Hetherington, Danzenbaker, and others.

Mr. Hutchinson says he has a belief that plain sections and separators lead to a more perfect filling of the sections; but he thinks the mere fact that the section is the same width all round, can not have a bearing on the question. Very true. I have tried several times to explain that I did not indorse any such notion; but still there are some who seem to believe that I claim that, because a section is plain, it will be better filled. As I point out elsewhere, a bee-way section can be made so it will be just as well filled as a plain one; but mark this — granting that both are equally well filled, a plain section will look the plumper, because the honey goes almost clear out to the edge of the wood. And then there is the fact that plain sections take less room in shipping-cases; take less lumber; and had it not been for the fact that lumber has advanced so sharply all over the country, they would probably have sold for less money than the beeway sections.

Referring to Mr. Daggett's statement, I would say that the average non separator case is very poorly adapted to securing good filling, for the reason that there are transverse partitions in the super. As Mr. Hutchinson points out, it is lateral communication that really is the factor in the matter. So I can't see that this argument has any weight as against plain sections.

THE NEW YORK FOUL-BROOD LAW AS RECENTLY AMENDED.

THE following, with reference to the passage of the foul brood law in New York, will explain itself:

Mr. E. R. Root:—I hand you herewith a copy of the New-York foul-brood law, recently passed by the legislature and approved by the Governor. After thoroughly canvassing the situation we were advised and concluded to amend the old law as we have done, believing it would be just as good and much easier to accomplish than the securing of an entirely new law. This conclusion, so far, has been justified in part in the fact that our bill amending the old law passed the legislature, was approved by the Governor, and became a law in just twenty days from the time it was introduced.

Although entitled an act *amending* Chapter 338, Laws of 1893, "relative to prevention of disease among bees," it is *practically* a *new law*, there being only four lines of the old law left (the first four lines, section 80).

On comparison you will find it embodies many desirable features of the celebrated Wisconsin law; those not embodied in the amendment are already provided for in Article I. Section 2 of this same chapter (338, Laws 1893, known as the Agricultural Law) which authorizes the Commissioner of Agriculture to *fix the compensation* of his agents and other persons employed by him, and "such *compensation* with their *necessary expenses shall be paid* on his certificate by the treasurer on the warrant of the comptroller," no matter whether such expenses are two dollars or two thousand dollars annually, more or less.

No *special appropriation* was necessary. This is an exception to your rule, page 233, where you say, "A law without these essential features is like the play of Hamlet with Hamlet left out." With us this was very important. Being a part of the agricultural law, a *special* appropriation was not necessary, and certainly not desirable if it could be avoided, as in this State the constitution requires that all appropriations must be paid *within* two years next after the passage of the Act; hence all appropriations must be *continued* or *revived* annually.

New York bee-keepers are grateful to all those legislators who aided in the passage of the bill; but to the Hon. Jean L. Burnett, of Canandaigua, N. Y., who introduced the bill, is due the credit for the prompt and successful manner in which it was passed.

Chapinville, N. Y., Apr. 15. W. F. MARKS.

(Chapter 223, Laws of 1899.)

AN ACT to amend chapter three hundred and thirty-eight of the laws of eighteen hundred and ninety-three, entitled, 'An act in relation to agriculture, constituting articles one, two, three, four, five, six, seven, and eight of the general laws," relative to prevention of disease among bees.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Section eighty of chapter three hundred and thirty-eight of the laws of eighteen hundred and ninety-three, is hereby amended so as to read as follows:

§ 80 The prevention of diseases among bees.—No person shall keep in his apiary any colony of bees affected with a contagious malady known as foul brood; and every bee-keeper, when he becomes aware of the existence of such disease among his bees, shall immediately notify the commissioner of agriculture of the existence of such disease.

§ 2. Section eighty-one of said act is hereby amended so as to read as follows:

Sec. 81. Duties of the commissioner.—The commissioner of agriculture shall immediately, upon receiving notice of the existence of foul brood among bees in any locality, send some competent person or persons to examine the apiary or apiaries reported to him as being affected, and all the other apiaries in the immediate locality of the apiary or apiaries so reported; if foul brood is found to exist in them, the person or persons so sent by the commissioner of agriculture shall give the owners or caretakers of the diseased apiary or apiaries full instructions how to treat said cases. The commissioner of agriculture shall cause said apiary or apiaries to be visited from time to time as he may deem best; and if, after proper treatment, the said bees shall not be cured of the disease known as foul brood, then he may cause the same to be destroyed in such manner as may be necessary to prevent the spread of the said disease. For the purpose of enforcing this act, the commissioner of agriculture, his agents, employees, appointees, or counsel, shall have access, ingress, and egress, to all places where bees or honey or appliances used in apiaries may be, which it is believed are in any way affected with the said disease of foul brood. No owner or caretaker of a diseased apiary, honey, or appliances shall sell, barter, or give away any bees, honey, or appliances from said diseased apiary, or expose other bees to the danger of said disease, nor refuse to allow the said commissioner of agriculture, or the person or persons appointed by him to inspect said apiary, honey, or appliances, and do such things as the said commissioner of agriculture or the person or persons appointed by him shall deem necessary for the eradication of said disease of foul brood. Any person who disregards or violates any of the provisions of this section is guilty of a misdemeanor, and shall be punished by a fine of not less than thirty dollars nor more than one hundred dollars, or by imprisonment in the county jail for not less than one month nor more than two months, or by both fine and imprisonment

§ 3. This act shall take effect immediately.

In view of the fact that there was already a special appropriation for contingencies of this kind, the law as amended is better than something after the Wisconsin measure. If I understand it, it all lies with the Commissioner of Agriculture, who *immediately*, upon complaint, *shall* appoint some competent person to investigate, with power to suppress the ravages of the disease. In the case of the Wisconsin law, the *majority* of the members of the bee-keepers' societies must ask the Governor to appoint some competent person.

The following, from Thos. G. Newman, will explain itself:

Mr. Root:—On page 299 of GLEANINGS for April 15 it is stated that I have made "demands" as a condition of amalgamation of the two Unions, and that these are never likely to be assented to by General Manager Secor, and there the matter rests, etc. This is *news* to me. I have never made *any* "demands" in that line, and *call for the proof.*

THOS. G. NEWMAN,
San Francisco, Cal., Apr. 24. General Manager.

OUR HOMES,

BY A. I. ROOT.

Except a man be born again, he can not see the kingdom of God—JOHN 3:3.

Put ye on the new man, which after God is created in righteousness and true holiness.—EPH. 4:24.

The above texts were suggested by a kind letter that probably ought to go in the Roll of Honor, or letters from the veterans, as it comes from an old friend away off in Australia. The following is the extract:

> *Dear Mr. Root:*—My dear friend—(allow me to call you so, at any rate, for this once), in this age of new lights, when the gospel of the three R's seems so very unfashionable, it often makes me exult and almost exclaim aloud to read in Our Homes the old-fashioned truth. Why, you absolutely believe in conversion—even believe men must be born again! Go on, brother beloved in many lands by many hearts, and there will be a great ingathering at the harvest home.
>
> Brisbane, Queensland, Feb. 2. J. G. CRIBB.

Yes, dear brother, I do believe in conversion, and it wrings my heart with anguish, sometimes, to see people treat the matter of becoming converted, and of uniting with the church, with such indifference as they often do. Now, I am not going to make a fling at the churches. It is quite common now, at least with some of the new sects, to criticise most severely the older denominations, and for certain ones to boldly invite people to break away from the church they are already connected with and come out and stand with them. I do not believe in this sort of doctrine. I do not believe it is the right thing for a man to put away his wife and try to get a better one. You all know that, without my telling you; and I have sometimes felt as if withdrawing from one church, that you may unite with another, was a good deal in the same line. If a man is united with a church, and is not living such a life as a church-member ought to, then let us rally around him, and have him put on the new birth right where he is. Let us get him to reform and put on the new birth, if it should transpire that he has never *been* born again.

The dear brother who writes the above kind words suggests that, away off on the opposite side of this earth of ours, the idea of conviction and conversion, with a change of heart and a change of life, is in danger of becoming old-fashioned. God knows there are many evidences that it is getting to be out of fashion on this side of the world. People unite with the church, and God knows I am glad to see them do so; but it often seems too much as if they were hiring out to work on a farm. They do not say any thing about a change of *heart*, or at most but very little, and we do not see any particular change in their *lives*. If they come to prayer-meeting they do not take part. They do not report progress and tell of their struggles with the adversary. Oh! but there *will* be struggles, dear brother and sister, if one stands out boldly and fearlessly before the world for Christ Jesus. There *must* be struggles; there must be fightings within and fightings without. Oh how I do long—yes, God knows how I do *hunger* and *thirst* to see or hear of the old-fashioned conviction and conversion!

I am going to talk considerably about tobacco to-day. May the Holy Spirit be with me to direct my poor efforts so they may do *good* and not *harm*. Church-members used to give up tobacco when they united with the church; but nowadays there does not seem to be much said about tobacco. Sometimes they give it up for a while, but pretty soon they go back to the use of it. While I write these lines I call to mind three different persons, friends of mine, who, through my efforts, gave up tobacco. After quite a lapse of time, say two or three years, each one of these three friends thanked me something like this: "Mr. Root, whatever happens I shall thank you, as long as I live, for having induced me to give up tobacco. My health is better; I am a better Christian, and I am ashamed now to think that I ever was such a slave to it." Well, the above is good, is it not? But, dear friends, if I let the truth all come out I must say that each one of these three is using tobacco today. One of them used to have a class of boys in Sunday-school. When he got to using tobacco again, his conscience reproached him so that, when standing before those boys as their spiritual teacher, he——gave up *tobacco?* No, no! He gave up the *Sunday-school class;* and I fear he has given up talking in the weekly Endeavor Society meetings as he used to do. Church-members who do not use tobacco are learning how to use it while they *are* church-members. In a recent number of the *Advance* it was suggested that the use of tobacco is on the increase among *ministers of the gospel!*

Now, lest somebody should say I am hitting a clip at other churches, and perhaps hinting indirectly that my own church is better in this respect, I think I had better say right out, that the cases I have mentioned were all among members of the Congregational Church; and, if I remember correctly, it was ministers of our own denomination who are using tobacco more lately than they used to do. If I am wrong, I hope that somebody who knows better will set me right.

Let me digress enough right here to ask the question, "Why do people begin to use tobacco when they know nothing about it and do not care for it?" Somebody ought to be able to answer this question. If I should make a guess I should say that nearly half of the men we meet are tobacco-users in some form or other. The drinking class all use tobacco as a matter of course. Then there is a large lot of other people who use tobacco—men of intelligence and culture. *Why* do they use it? Does your family physician use tobacco? The family physician ought to be the leader of community, not only in every thing that pertains to health, but in that which pertains to morals. Any doctor who is honest will tell you the harm that tobacco does to the health of our people; but even while he speaks against it he uses it himself. Our young men who go to college, and have grown up in Christian homes, a great many of them, sooner or later use tobacco. I have sometimes thought that success in life—that is, success in a financial way—is almost always followed by the use of tobacco and the drinking habit. Can this really be true? Do men show their gratitude and thankfulness for prosperity and success by taking stimulants? "Lord, help!" In fact, this little prayer of mine has been welling up all along as I have gone over these things.

Some time ago I told you about the closets in our factory. I spoke about our beautiful Smead system. Well, the paint had hardly got dry on the blinds to each individual apartment before tobacco juice was squirted on these screens that were put up simply to secure privacy. If the vile stuff had been extruded in one spot we might have cleaned it up; but it was spattered all over the whitewashed wall, on the floor, and on the baseboards. We might have stopped it by dismissing every man in our employ who uses tobacco; and if the effect would have been good and not evil I would have done so, no matter if it had shut down our works temporarily. Please remember, our institution has been for years comparatively free from tobacco. Year after year this thing has gone on. At Ernest's suggestion I put some wooden boxes, half full of sawdust, where the greater part of the filth has piled up, and I began to feel quite light-hearted when I found most of the filth in said boxes. This morning I discovered a box had got pushed back a little out of sight by some means, and the filthy stuff was spattered on the doors and walls again. What shall I do? What would *Jesus* do? May be you think I am needlessly cranky on this matter. Perhaps you say it is one of the necessary evils we shall have to get along with as well as we can.

Somebody may ask, as did Nicodemus of old, "How can a man be born again?" In other words, what does it *mean* to be born again? Well, I am glad we have before us an excellent illustration of what it does mean.

You have not forgotten the story of Mr. Imler. I have taken pains to hunt up a great mass of facts in regard to this strange occurrence. Please remember I am not booming Dr. Dowie just now; for I am not sure but some of his uncharitable and severe censure is almost as bad as the use of tobacco. But I wish to give him the credit which he deserves. Mr. Henry W. Imler was a well-to-do business man in Fremont, Ohio. You see he was not very far away from us. He had used tobacco for more than fifty years, even to the extent of twelve or fifteen cigars a day. This comes from his own statement. In December, 1897, he was afflicted with a very bad tobacco cancer. He consulted the best physicians. They told him he could live only a few months unless the cancer was cut out; and I believe they also told him frankly that its location in the upper part of the mouth was such that he might not survive a surgical operation. When they found that he also used morphine in excessive quantities he was told he could not avail himself of the benefits of chloroform. He would have to be literally cut to pieces without getting relief from any anesthetic. Brother Imler was in a tight place.* He had been almost all his life a professing Christian. In his earlier years he was a victim of strong drink; but through faith in God he was enabled to break from the habit, and had not been a drinking man up to the time of his death. However, he held on to tobacco, and he got to taking morphine, for neuralgia, while in the army, in 1861. At the time he visited Dr. Dowie, the last of December, 1897, he was *really* in *trouble*. He was induced to go there by two friends of his who had been cured, as they claimed, of cancer by going to Dr. Dowie. Any one who cares to have the full particulars, at considerable length, can find the whole of it in periodicals published in different States about the time of the transaction.

Mr. Imler told Dr. Dowie his trouble. The doctor asked him a great number of questions. He told him they could not ask God's help in such an emergency unless he would promise to give up the use of tobacco and morphine. But many (or perhaps most) physicians would have said that, to break straight off from the use of both of these drugs at once would bring on insanity if not death. He used daily enough morphine at a single dose to kill three ordinary men. Dr. Dowie told him that God would lift him through the ordeal if he would but give himself, life and all, over into God's hands. Now, this should not be a very hard thing for a *Christian* to do. But Dr. Dowie probed a little further. Mr. Imler had some tobacco in his store; and the doctor told him that, before he could expect help, he would have to give up the traffic. Selling the stuff to somebody else to work mischief with would not do. It would have to be burned up. Furthermore, he would have to consent to stand out before the world in this whole thing. He would have to make a bonfire of his tobacco and cigars. He would have to do it out in the street, and invite people to see it. I think the doctor told him to invite the pastor of his church to be a witness, and pastors of other churches if he could get them to come. Mr. Imler, for once in his life, was called upon to bear a cross, and it had to be borne as the Master bore his cross in ages past. This bonfire had to be before the jeering multitude. All tobacco-users, and may be some other good people — yes, members of the churches, would call him a crank, and laugh at his infatuation. Now, Dr. Dowie did not tell him he could *not* be healed until after the tobacco was burned up. Mr. Imler was a good business man. His promise to make a public bonfire of his stock in trade, and renounce the use of the traffic in tobacco for ever was sufficient. Mr. Imler considered the matter, perhaps as a drowning man catches at a straw, and then he began to have faith.* No doubt his good sense told him it was a *sensible* thing for a professing Christian to do, whether he got well or not. He gave the promise; and, as you have already been told, the cancer dropped out in the night.

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* Yes, he was in an exceedingly tight place. He had probably made vain attempts to break off from tobacco and morphine, in the years past. Now he was obliged to face the surgeon's knife; and this very surgeon, or council of surgeons, told him the outcome was doubtful. Now, do not think me harsh and uncharitable when I say that that surgeon, or council of surgeons, probably used tobacco. Very likely they would take a big chew before commencing the operation; and some surgeons, as I happen to know, add strong drink to brace up their nerves when they take a human life in their hands. There was no getting away from it. You can not run away from the toothache, and this was a thousand times worse than any toothache. Tobacco and morphine held him in iron chains, and the surgeon's knife confronted him. The long years of indulgence were coming to an end. Unless God helped him out of his terrible trouble there was no help.

Now, at the same time his cancer dropped out we are told in a general way that he lost the appetite for both tobacco and morphine; but there was someting more than that I found out in regard to this transaction that was extremely interesting to me, inasmuch as it strongly corroborates the truth of this most remarkable occurrence. The night the cancer dropped out was one of acute and intense suffering. He was almost crazed with pain. He had to have watchers, as I take it, to prevent him from getting away and procuring morphine. At times he knew so little what he was doing that he was hardly responsible.

Now forgive me if I am guessing at some parts of the matter. When he found his sufferings from a lack of morphine almost unendurable, I think he went to Dr. Dowie again — perhaps several times. Dr. Dowie prayed for him as perhaps few men but himself could pray. Mr. Imler prayed also. The night *after* the cancer was taken away he slept soundly; and in the morning he said his appetite for morphine was gone; and for more than a year after this occurrence, as nearly as I can gather, Mr. Imler was a walking and talking evidence, not only that God *could* but that he *would* save us from the effects of our sins. Mr. Imler was a new man. He had really been *born again*, even in his old age; and he had got a very bright and vivid view of God's kingdom and of his righteousness. He was a new man in "righteousness and true holiness." Many people laugh at this. Why, one of the very best women in the world (I will not tell you her name) told me she did not believe it. I replied that this was no story of a "seance" in a dark room. The healing was in the presence of a great multitude. It reminds me somewhat of the miracle of the loaves and fishes. More than a thousand people heard Mr. Imler speak, and hundreds have listened to him since he got home. Nobody who has taken pains to investigate disputes the main facts in the case. I have heard it intimated somewhere that physicians explain a part of it by saying that tobacco cancers *do sometimes* drop out. If a man were to keep right on using tobacco "all the same," I do not know whether they would *stay* out or not.

Now, I know this whole paper has very much the appearance that I am putting in a plea for Dr. Dowie, but I am not. God is no respecter of persons. He is just as willing to hear our prayers as Dr. Dowie's. The doctor, after his long experience, has probably gained a great amount of faith; and, like any physician, his faith has a powerful influence over the patient. Dr. Dowie himself never healed any one. Nobody is more emphatic in this statement than he himself. It is *divine* healing. If you would break away from your sins, burn up your stock in trade of whatever is harming your fellow-men; make restitution to those whom you have wronged, as in the case above, and then you have just as much right to expect divine help as if you went to the expense of taking a trip to Chicago. Since what has appeared on this matter in GLEANINGS, a poor helpless woman, the mother of a large family in one of the extreme western States, has been induced to take Christ Jesus as her physician, and has been wonderfully healed.

Before closing let me give a word in regard to having the appetite for tobacco and morphine taken away. I have passed through an experience in a similar line, as some of you may know. An Oberlin professor once asked me a number of questions in regard to the matter. In my case the deliverance from bondage came about something in this way: When I was between 30 and 35, by staying from the churches, and, in fact, staying within a little narrow circle around my own home, I had become selfish and narrow minded. Very likely I am that way yet (but not so much so). Well, I was either helpless in the toils of Satan or I imagined I was. You may put it either way you choose. But many men commit suicide from the effect of just such imaginings. I was helpless and lost, or thought I was; and let me say once more it amounts to pretty much the same thing either way. I was letting my mind run on a trivial and foolish matter; and, oh dear me! is it not true that sin of *all* kinds is simply *folly?* When a man says he can not give up tobacco, and that, after having gone without it a whole year, he wanted it as bad the last day as he did the first, he is simply making a fool of himself, just as I made a fool of myself; and may God forgive me for that wretched piece of folly.

Well, like poor brother Imler I appealed to the great God above. I felt like saying as did Peter, "Lord, save or I perish." Now, from this point on my experience is unlike Mr. Imler's. I was alone. No human being was near. I knelt down in the darkness, and there promised the Lord to give up every thing, surrender every thing, change my business, change my life, if he would only give me back childhood's innocence and childhood's freedom from care and worry, or the burden of sin. The new birth began then and there and at that instant. I began to see humanity as God sees it. I began to hunger and thirst after righteousness. The thing that had been troubling me, when I first went down on my knees, with the change of heart that came then and there, dwindled into nothingness. Like a great flood that washes away and overwhelms landmarks, so my "old man" was obliterated; it was drowned out.

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* I can imagine that Imler's situation at this point would remind one of that grand old hymn:

> Jesus, I my cross have taken,
> All to leave and follow thee.

Few of us can comprehend the cross that Mr. Imler had to bear. Both tobacco and morphine had to be broken off at one "swoop," and, furthermore, he would have to go home and make that public bonfire. People who felt sorry for him because he had gone crazy would probably say as Judas did, "This two hundred dollars' worth of tobacco might have been sold, and the money given to the poor." Dear me! how thoughtful people are at times for the poor! They were going to start an open saloon here once in Medina, and use the money that it would bring into the town, to relieve the poor, fix up the streets, etc.!

Now, then, dear friends, through the light of God's love this appetite for tobacco may dwindle into nothingness. You will be utterly ashamed of it, and smile to think you struggled and fought with such an insignificant thing; but this must come through the baptism of the Holy Spirit. When you are struggling to get above things of this kind there is nothing that can help you like Bible texts and Bible promises, and your Bible should be your daily and constant companion. Through the influence of this Bible your life work may go out to every corner of the earth; whereas without it you might have wasted your time and talents on a little bit of earth scarcely a rod square. Where a man is devoted to self only, and to the things of self, a rod square is room enough — in fact, too much; but where he is really seeking the kingdom of God and his righteousness, the whole wide world may be too *small* for him. I can readily understand how Mr. Imler came out absolutely free from the bondage of tobacco and morphine in two or three days — yes, with strength and life to stand up before the world and proclaim the gospel of Christ Jesus. I have been told that, when people are cured of the morphine habit by the gold cure, it takes weeks or months for them to get strength to do any thing without the stimulant. This may be the way with drug healing; but when God heals the *soul*, every faculty and every organ of the body very quickly responds.

Now, I would by no means say, with Dr. Dowie, that drugs and doctors are not needed; but I should want my medicines to be prescribed by a God-fearing physician, and I should greatly prefer one who does not use tobacco.

THE ANTI-CANTEEN LAW RECENTLY PASSED.

I presume there was general rejoicing among all Christians and temperance people throughout our land, when, after a prolonged fight, a law was passed that everybody supposed would, of course, put an end to the shameful and disgraceful sale of beer and other drinks to our soldier boys in the recent war. The intent of the law was certainly to abolish the whole business. Dr. Crafts, of Washington, D. C., who drew it up, and those who indorsed it in the Senate, so understood it, without question. There were debates enough on it, certainly, to make any thing plain and clear; but the enemy, finding they were beaten "out and out" by righteousness, temperance, and justice, have now the brazen audacity to so twist and misconstrue as plain a law as laws can be made, as to make it appear that it does not absolutely stop the thing. The Chicago *Advance* says: "As is well known, Secretary Alger was opposed to the liquor prohibition in the new law; and it was claimed that it was he who first suggested this new interpretation." Now, then, are the friends of righteousness, temperance, and purity going to sit down and let this infamous proceeding go on? Where is the patriotism and enthusiasm that rose with such vehemence when the news swept over the world that the Maine had gone down? When great officers in high places undertake with such audacity to defy law, order, and decency, is it not time for us to wake up *again?* We know that the rum power has been setting aside law and order in our great cities. Shall it continue to do this clear up to the head of our general government? Surely the President of the United States has something to say and something to *do* in a crisis like this.

THE CANNED ROAST BEEF, ETC.

Notwithstanding the fact that the samples Prof. Wylie got hold of in the general market all proved to be good, the evidence seems to be at present pretty strong that very poor meat in cans and out of cans was furnished to our soldiers. Now, if anybody has tried to speculate by furnishing poor meat to our boys who were sick, and away from home in a tropical climate, they certainly should be punished if there is *any* punishment for *any* culprit under *any* circumstances.

HIGH PRESSURE
GARDENING
BY
A. I. ROOT.

HAPPY SURPRISES.

At this date, April 21, we are having about the nicest April weather I ever saw; and we have not had a frost for almost two weeks. If this is not a happy surprise to others as well as to myself, it ought to be. It took me a long while to get over the effects of the grip. My strength seemed gone, and my enthusiasm seemed lacking, at least to a considerable extent. But I held on to the Bible promises, and kept asking, "Lord, what wilt thou have me to do during the remaining portion of life on earth thou hast given me?" For one thing, I began to feel that I should have to give up a good deal of the gardening business. It has been too much care, and, besides, possibly it takes my time from things that are of *more* importance than gardening.

The question then arose, "How shall I retreat in good order?" We do not run any wagon around town now, and, in fact, we do not sell very much at the groceries. There are other and younger men who need the business, and I do not wish to take the trade from them.

There are two things, however, that grow a spring crop of considerable value, even without planting, and almost no cultivation — asparagus and pie-plant. Right across the road from the factory we have about 500 strong thrifty pie-plant roots. These roots must be sold or else we must sell the product for pies. Now, it is very much pleasanter to have purchasers call on you than to be obliged to call around on the purchasers. Sometimes in gardening we can manage this; but at other times we can not very well. I put a notice in two of our Medina papers, something like this: "Choice strong pie-plant roots for only a nickel each *if you will come and get them.* They are so big you will need to bring a wheelbarrow or wagon, if you want several; and if put right out now, each one of these great roots will furnish you material for pies this season, that will be worth several times the nickel the plant costs you." The papers were hardly out before people came along for the roots. In fact, Frank began to look troubled at the number of customers just when he was busy shipping potatoes, vegetable-plants, etc. Another thing, most of the customers seemed to think they could carry half a dozen roots in a half-bushel basket. When they found it needed a *wheelbarrow* to take just *one root*, then there was a "happy surprise" for the customer.

Well, I have just been figuring up this morning that it would be a pretty big investment to grow pie-plant roots for sale at the above price. It is true, it takes two or three years to grow good strong ones; and it takes a good pile of stable manure each year to keep them booming. But how many plants do you suppose you could grow on an acre with rows three feet apart and the plants 18 inches apart in the row? Why, there would be almost ten thousand There need not be any missing hills, for pie-plants rarely die; and when one is missing, just divide its neighbor and fill up your ground. Well, ten thousand plants at a nickel each would be $500; and I think that on market gardeners' ground you could get most of them so they would bring this price in about two years. By cutting the large roots in pieces, and transplanting them, you can get large roots a little quicker still; but it is more work than to sow the seed. With exceedingly rich ground, well underdrained and trenched, you can get nice stalks for pies the same year you sow the seed, for I have done it.

Now, my other happy surprise comes along in the line of selling strawberry-plants. You know I talked to you last year about my handsome plantation of strawberries with the plants only two feet apart from center to center. These were cultivated three different ways with the wheel-hoe; and the original idea was to keep the runners cut off. There was about half an acre of the patch. It was well manured before the plants were put out in the fall of 1897. Then old well-composted manure, broken up fine, was scattered all through the patch with wheelbarrows once or twice last season. In consequence of the strong manure and abundant rains last fall, the plants put out runners and covered the whole ground. It was not a matted *row*, exactly, but it was a matted *half-acre*. Well, these plants all wintered without any mulch whatever, and not a plant was lifted out by the frost. Why, the whole plantation looked more like a thrifty field of clover than a strawberry-patch. The problem this spring was to provide paths for the pickers; for the berries will probably lie almost touching each other all over the half-acre. More than half the plants are Brandywine and Wm. Belt.

Well, my pie-plant venture succeeded so well that I decided to try the same thing on strawberry-plants. I advertised in the county papers that, if people would come with baskets, and take the plants that were taken out in order to make paths for the pickers, they might have them at half the regular prices; and the thing is going on just as I write, in a way that makes it *another* happy surprise.

Where a path was wanted we stretched two stout cords. These cords are 18 inches apart. Then a man takes a sharp spade and cuts down along each cord. After this he takes a spading-fork and spades up a block of dirt, plants and all; then with a stout box to sit on (open on one side, about 16 inches square and 6 inches high), he, sitting astride the path, separates the plants from the dirt and puts them in the customer's basket. These plants are about the strongest and thriftiest I ever grew. Where they are too near together, of course there will be some small ones; but these small ones are thrown in without charge, and our customer can use them or not as he chooses.

Now, if all the plants *are* sold at half the advertised prices, our half-acre of strawberries will produce quite a round sum of money. But there has been a good deal of labor bestowed on it in the way of weeding, cultivation, etc. After the berries are picked, the whole patch will probably be plowed up and planted to potatoes; and with the amount of manuring it has had, I expect a wonderful crop of potatoes.

There has been a good deal of fault found in regard to fall planting; but this plantation was *all* made in the fall. The plants were, however, put in with a transplanter. They were manured and cultivated and weeded during one whole season — that is, last year. A small crop of extra-nice berries was taken from them last June. With this method of working strawberries they occupy the ground not quite two years. We would commence planting them, if the ground were vacant, in August, and in our locality the ground would be ready to put in a crop of potatoes about the first of July; so it would lack about one month of having the strawberries on the ground two years. Of course, I do not know what the crop before us is going to be. If the frost holds off I think we shall see something astonishing.

ORIGINATING NEW VARIETIES OF POTATOES, STRAWBERRIES, ETC.; PROF. W. J GREEN, OF THE OHIO EXPERIMENT STATION, TELLS US SOMETHING ABOUT IT.

Mr. Root:—In reply to yours of March 21, regarding the statement which you made on page 238, I think you have not stated the question too strongly. It is true that one may sometimes produce a superior seedling potato or strawberry, or any other kind of plant, from a comparatively small number of seedlings; but to get something better than the varieties we already have, I think it is a very conservative estimate to say that we must grow 10 000 seedlings to get one that is an improvement over existing sorts. We have grown strawberry seedlings for years, and have thrown away a great many thousands, and yet have nothing to show for all of the work done, unless it may be that one which we now have on trial will come up to expectations. We have also raised a good many seedling potatoes, and some that were really good; but careful comparison with old varieties showed that we have not, as yet, produced any thing worthy of dissemination. There is more than one side to this question, however. One can often produce a seedling quite as good as well-known varieties, and then there are particular strains, or families of varieties which, if one is fortunate enough to secure, is more likely to be successful than with the common run. We had several hundred seedling strawberries one year in a bed, and we noticed that, when this bed was picked, the berries were as fine as the best of the varieties in the variety patch alongside. I have heard Mr. Crawford say that he was almost sure to get good varieties from seedling strawberries. I think one is more sure to get something good if he crosses desirable varieties, and by careful trial one may find which varieties to cross to give the best results, although no one can be certain just what the result will be. He can simply be sure that certain crosses will produce better results than certain other crosses; and I believe that, when one begins to grow seedlings, he ought always to grow from seed that has been produced by systematic crossing, as he is more sure of getting good results in this way than by gathering seed at random. Last winter, at the State Horticultural Society, Mr. L. H. Read, of Wisconsin, had on exhibition a large number of varieties of potatoes grown from seed, nearly all of which were very fine. These examples do not prove, however, that one need have any reason to expect that he will get something superior to old varieties. It simply shows that, by careful work, he may get something good, and be almost sure of it, every time.

Wooster, O., March 28. W. J. GREEN.

We copy the following from our good friend Manum, who gave us the Enormous potato :

GROWING SEEDLING POTATOES.

Mr. A. I. Root:—In GLEANINGS, page 238, you make a request that I give your readers something of my experience in growing seedling potatoes. I will state that, in the past fifteen years, I have grown thousands upon thousands of seedlings, and of these thousands I found but *one* that I thought was really any better than what was already before the public. This one I introduced as "Manum's Enormous."

I find that in growing seedlings of any kind, whether potatoes, strawberries, raspberries, or blackberries, or even flowers of any variety, it is important that we have a base—a good foundation from which to start; that is, our chances of success will be far better if we take our seed from choice varieties.

I always aim to secure seed from stock that is as nearly an ideal variety as is possible to get. We would not think of breeding from a scrub cow, nor raising queens from worthless mothers; and no more should we think of saving seed-balls from undesirable potatoes.

I might spin out a long article in telling you of the different families of potatoes, for such do exist, as much as different families of cattle and sheep; and, as Mr. Terry once said regarding a new variety of potatoes, "Blood will tell." It is a fact, however, that one may grow hundreds of seedlings from seed taken from any of our very best varieties of potatoes, and yet not get one superior new variety; and then, again, we may get several good ones, though perhaps no better than many of our old well-known varieties. In the lot of seedlings from which I selected the Enormous I had an unusual number of good varieties.

My seedlings the third year from seed numbered 101, and the fourth year from the seed I selected five that were very promising. They were Nos. 1, 3, 4, 6, 9, No. 9 being the Enormous. No 1 was an excellent table potato—I think one of the very best I ever ate. Although they yielded heavily at first, they soon "went down," as the saying is, to an ordinary yielder. I plant a few each year, however, for seed-balls, as they are great ball-bearers. Nos. 3, 4, 6, were discarded as being no improvement on the old stock.

The next season I again raised several thousand seedlings, a portion of which I planted the second and third years, and finally discarded them all.

You will see, therefore, Mr. Root, that I have worked hard and faithfully for fifteen years, and thus far have succeeded in producing but one really desirable potato. I have at the present time 41 seedlings three years old — so many saved from hundreds thrown away last year. Among these 41 I have some very promising varieties, one in particular which promises to be extremely early. But that with the 40 others may have to be thrown overboard in one or two years. I have now, as is my custom at this season of the year, thousands of little seedlings up about two inches, and to-day I have been pricking them out in larger trays. I may get a good variety out of the lot, and I may not. There is one thing sure: I shall not *knowingly* introduce a new potato until I am quite sure that it is equal to or better than what we already have.

My experience with berries has not been as extended as with potatoes, corn, oats, and beans. In 1897 I transplanted 81 seedling strawberries, and all but one have been discarded. Six years ago I had 238 new beans. They were the result of cross fertilization by honey-bees. Of these 238 I have only one that proved to be desirable; but there are so many beans on the market I never offered it except once, and then the sales were so few that I gave it up.

It will be seen, therefore, that an originator's efforts are often rewarded with painfully small proportions of desirable varieties, if, in fact, he is fortunate enough to get that small proportion.

I have an acquaintance, Mr. A. Rand, who has grown seedling potatoes for many years, and who, by the way, is as well informed as regards the different varieties of potatoes and their origin as any man in America. He tells me, and I agree with him, that there are some families of potatoes that are incapable of producing seed from which a desirable variety of potatoes may be grown. It is, therefore, important that we get our seed from choice stock. Every year I test many of the new varieties offered for sale. I do this to test their quality and vitality; and if I find in them a desirable quality that seems to be more prominent than in some other choice variety, and if the flowers of this new variety furnish pollen (many varieties do not), I try, by cross-fertilization, to incorporate the good qualities of the one with the other. By this union I feel more sure of success with the seedlings that follow.

As intimated above, it is important that we have a good foundation upon which to start our building. With this in mind I use, as a base, varieties of the old Snowflake family, and try to improve upon that family by introducing new blood.

I am often asked how it is that my potatoes bear balls. To succeed in this I aim to plant ball-bearing varieties, and see to it that bugs do not destroy the flower-buds; for in the crown is where the tiny bugs begin their work of destruction.

In 1895 I gathered three bushels of balls, from which I saved one pound of seed; but we must remember that there are but few varieties that bear balls. Although our potatoes may blossom well, many of the flowering varieties produce pistillate or imperfect blossoms. They are not unlike strawberries in this respect.

I am aware I have made this article much too long, and yet I feel that I have but hinted at the various points which require further explanation.

There is one point which I wish to mention regarding new varieties, and that is, that it is very probable that some of the much-advertised new varieties are old varieties introduced under a new name. For instance, a year ago a man who has sold to seed houses several so-called new varieties, purporting to be of his own origin, wrote me, asking my price for a barrel of *very choice select* Enormous potatoes, stating that he wanted them to sell to a seed-house under a *new name*, and that the transaction would not hurt me in the least. I will simply state that "Mr. Man" did not get the potatoes. I never answered his letter.

Bristol, Vt., March 30. A. E. MANUM.

It is a little remarkable how well these two veterans in the business agree. Where we take chance seedlings, just as they happen, the chances are very small for getting any thing better than what the world has already. But where one goes to work with a definite end in view, selecting the best parents, availing himself of cross-fertilization, etc , then the work may amount to something. Mr. E. C. Green, a brother of the above writer, went to work in just this way to produce the Fancy

Fordhook tomato. Last season he had ripe tomatoes on the market from this variety before anybody else, and the plant stands up so well that it hardly needs staking, and can be grown much closer than ordinary tomatoes. Perhaps it might interest our readers to know that Burpee has given my neighbor Green a contract for furnishing 300 lbs. of seed the coming season. Friend G. is growing a nice lot of little plants in his greenhouse, and will have the tomatoes on the market again before anybody else. As long as he can get good prices for the fruit, he will sell *fruit;* but when the price drops, then his whole plantation will be devoted to the production of seed.

USING PARIS GREEN, BORDEAUX MIXTURE, ETC., IN A MORE CONCENTRATED FORM, WITH THE FAULTLESS SPRAYER.

One of the things that have made these little pumps spring into popularity so quickly is that you do not need to make your solution of any particular strength. A spoonful of Paris green or even more in a cupful of water answers all right, and the exceedingly fine mist or spray does not hurt the foliage. The following, which I clip from a recent copy of the *Rural New-Yorker*, covers the whole ground pretty thoroughly.

BORDEAUX MIXTURE IN A TIN CUP.

M. R. W., Bath, N. Y.—There is now on the market a small tin sprayer, "vapor-sprayer" sometimes called, holding about a quart. It is sold at hardware stores for 50 cts., and works well in putting Paris green on potatoes, requiring only a pailful of water to go as far as a barrelful would go if applied with a sprinkling pot or spray-pump. I have never used Bordeaux mixture on potatoes, because, having no spray-pump, it seemed like so big a job drawing so much water and applying it with a sprinkling-pot. Can the Bordeaux mixture be used in this small vapor-sprayer by mixing it enough stronger to make up for the smaller amount of water required?

ANS.—Last year one of the small vapor-sprayers was used here at the Cornell Experiment Station for spraying potatoes. Paris green was used in it as strong as four to six ounces of the poison to the quart of water contained in the sprayer; this very strong mixture did not injure the vines in the least. It would seem that this was using the poison unnecessarily strong; probably one or two ounces of the poison would kill the bugs just as surely. Bordeaux mixture was also used in the little vapor-sprayer. The Bordeaux was made more than twice as strong as one would apply it to fruit-trees; that is, at least 6 pounds of the sulphate of copper were used in about 20 gallons of water, and even stronger, without injury to the vines. As the spray from one of these vapor-sprayers is so very fine, the quart of mixture it contains will go a good way on an acre of potatoes. It was the experience here, however, that the sprayer was hardly equal to the task of spraying the vines when they got half or two-thirds grown. The sprayer was used only when the vines were very small, soon after they had come up. It thus seems to be perfectly feasible to use Paris green or Bordeaux mixture much stronger in these little vapor-sprayers than in ordinary spraying apparatus. These little machines are exceedingly useful tools in almost any business having to do with the growing of plants. They are also very handy in applying insecticides to cattle or other stock infested with lice. The housewife will find them very useful among her house-plants in fighting red spider, plant lice, etc.

M. V. SLINGERLAND.

My brother used one last summer on his cow, and liked it very much. One push of the piston for each side of the cow will put on enough kerosene spray to last two or three days. J. S. HUNT.

Charlestown, N. H., April 14, 1899.

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Superior Stock.

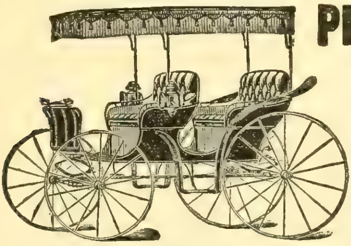
Every bee-keeper who has had experience with several strains of bees knows that some are far superior to others—that there is scrub stock among bees, just as there are scrub horses, cattle, sheep, and poultry. Let me give my own experience. Years ago, while living at Rogersville, I made a specialty of rearing queens for sale. Before engaging in this work I bought Italian queens, and Italianized not only my own bees but all within three miles of my apiary. In buying those queens I think that I patronized nearly every breeder in the United States; and even in those years of inexperience I was not long in noting the great difference in the different strains of bees. The queens from one particular breeder produced bees that delighted me greatly. They were just plain, dark, three-banded Italians but as workers I have never seen their equal. They seemed possessed of a steady, quiet determination that enabled them to lay up surplus ahead of the others. Easier bees to handle I have never seen. It sometimes seemed as if they were too busy attending to their own business to bother with anything else. Their honey was capped with a snowy whiteness rivaling that of the blacks. In addition to these desirable traits must be added that of wintering well. If any bees came through the winter it was the colonies of this strain. They came as near being ideal bees as any I have ever possessed. All this was twenty years ago; and several times since then I have bought queens of this same breeder, and I have always found this strain of bees possessed of those same good qualities—industry, gentleness, and hardiness. In addition to this they cap their honey as the black do theirs. I have frequently corresponded with this breeder, and with those who have bought queens of him, and I am thoroughly convinced that he has a strain of bees that are far superior to the general run of stock. If I were starting an apiary for the production of honey, I should unhesitatingly stock it with this strain of bees.

This breeder has always advertised in a modest, quiet, unassuming sort of way, nothing in proportion to what the quality of his stock would have warranted, and at last I have decided that I can help him, and benefit my readers at a profit to myself, by advertising these bees in a manner befittingly energetic.

The price of these queens will be $1 50 each. This may seem like a high price, but the man who pays it will make dollars where this breeder and myself make cents; and when you come to read the conditions under which they are sold it will not seem so high. The queens sent out will all be young queens, just beginning to lay, but, as there are no black bees in the vicinity, it is not likely that any will prove impurely mated. If any queen SHOULD prove to be impurely mated, another will be sent free of charge. Safe arrival in first-class condition guaranteed. Instructions for introducing will be sent to each purchaser, and, if these instructions are followed, and the queen is lost, another will be sent free of charge. This is not all; if, at any time within two years, a purchaser, for any reason WHATEVER, is not satisfied with his bargain, he can return the queen, and his money will be refunded, and fifty cents extra sent to pay him for his trouble. It will be seen that the purchaser runs NO RISK WHATEVER. If a queen does not arrive in good condition another is sent. If he loses her in introducing, another is sent. If she should prove impurely mated, another is sent. If the queen proves a poor layer, or the stock does not come up to the expectations, or there is ANY reason why the bargain is not satisfactory, the queen can be returned and the money will be refunded, and the customer fairly well paid for his trouble. I could not make this last promise if I did not KNOW that the stock is REALLY SUPERIOR.

I said that the price would be $1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one sending $1.00 for the Review for 1899 can have a queen for $1.00. Of course, this special offer is made for the sake of getting the Review into the hands of those who are unacquainted with its merits.

W. Z. Hutchinson, = = Flint, Michigan.



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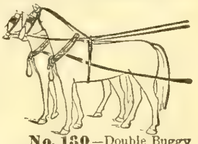

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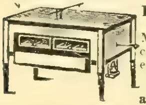

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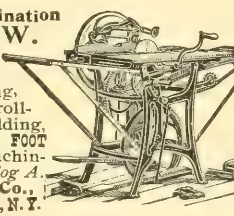

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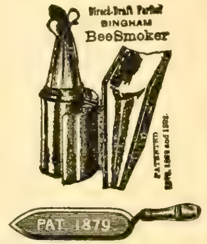

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GLEANINGS one year, and Mantel Clock, both for $4.50. Can ship clocks from Cleveland or New York city.

Last of all, if you don't want any of these clubbing offers, send us 50 cents for Gleanings the remainder of the year.

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They are made with **direct or staggered oval spokes, broad tires, any height, and to fit any wagon.** They can't **rot, go to spokes and** need no tire setting last indefinitely. There is only one thing better, and that is an

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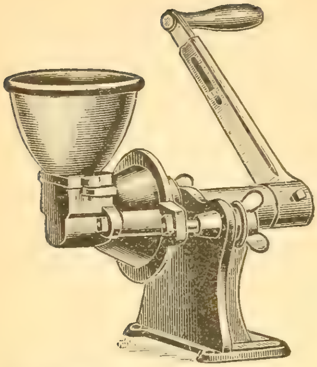

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Testimonial.

Cohoes, N. Y., April 17, 1899.

Gentlemen:—The queen I got of you last year is a beauty, and her bees are great workers. I wish all my bees were like them. WM. B. LOWE.

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Have just purchased fifty colonies of hybrid bees. Will sell their queens at 35c each or three for $1.00.
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WANTED.—To exchange one thousand wide frames with tin separators, for something I can use.
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WANTED.—100 laying Italian queens during the first and last of June. Queen-raisers, please give prices by mail. J. B. MURRAY, Ada, Ohio.

WANTED.—Your address for a free copy of my book on queen-rearing.
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WANTED.—To furnish my hives and sections, to careful men, for a share of No. 1 clover honey. Also 4 sizes of the prize comb-honey cartons, and 68 pages of "Facts about Bees," for 6 cts. in stamps.
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WANTED.—To exchange a lot of new hives and foundation for honey, beeswax, or cash; will allow 30c for beeswax; market price for honey. Hives and frames nicely nailed up with empty supers, at Root's prices. D. H. TWEEDY, Dillonvale, Ohio.

WANTED.—A situation, or to rent an apiary for the coming season. S. WHITEWELL, Galena, Kan.

WANTED.—To exchange 100 Simplicity hive bodies with wide frames and tin separators, for any thing useful. A. Y. BALDWIN, De Kalb, Ill.

WANTED.—An active young man with some experience in bee culture to work in apiary and garden. Apiary run for comb honey. State age, experience, and wages wanted. Address
W. D. WRIGHT, Altamont, N. Y.

WANTED.—For cash.—50 to 100 colonies of bees, in Wisconsin or Northern Illinois. Address
LOCK BOX 252, Ada, Ohio.

WANTED.—About sixty three frame nuclei without queens, June 15. Give prices, also frame dimensions. WILLIAM FRANKS, Muskegon, Mich.

WANTED.—To furnish 3-frame nuclei with queen, or queen and 3 lbs. of bees, before May 20, at $2.00 each; 25c less for hybrids. No disease. Will exchange for good incubator. G. W. GATES, Bartlett, Tenn.

WANTED.—To exchange Buff Rock eggs for nucleus of bees. MRS. A. P. SHREVE, Lawndale, Ill.

WANTED.—To exchange full frames of honey (or partly filled), Simplicity size, for pure Italian queens, or pure Italian bees by the pound shipped in cages with queens. Make me an offer, stating price of queens and bees, and what you can allow for my combs. For further particulars address
J. M. YOUNG, Box 874, Plattsmouth, Neb.

WANTED.—To exchange a No. 1B Mann's green-bone cutter (cost $7.00), used but little, for an expanding harrow cultivator (Planet, Jr., or Iron Age preferred) or offers. C. M. SPENCER,
Glenmont, Albany Co., N. Y.

SPECIAL NOTICES BY BUSINESS MANAGER

Please take note of our low clubbing offers on page 348.

BEESWAX PLENTIFUL.

The present indications are that in the very near future we shall have to reduce the price we pay for beeswax one or two cents a pound. The heavy winter losses are beginning to have the double effect of making wax more plentiful in the market, as well as cutting off the demand for it in comb foundation. If any have been holding for better prices our advice is to get rid of it as soon as possible, while present prices hold good. By next issue we shall undoubtedly announce lower prices unless there is a decided change in conditions which we do not now foresee.

MAPLE SUGAR AND SYRUP.

This has been one of the most favorable seasons in the history of this section for the production of maple sugar and syrup; and as a consequence it is quite plentiful; and now that the season is advanced the price is lower. We are prepared to furnish choice sugar, in 50-lb. lots and upward, at 8 cts. per pound; by the barrel, 7½ cts.; choice maple syrup at 85 cts. per gallon; in 10-gallon lots, 80 cts. Twenty gallons or upward, 75 cents per gallon. These prices are good only so long as the present surplus exists, and will not apply through the warm summer months. Send in your orders now if you want any.

LIGHT-WIRED FOUNDATION.

Mr. Weed is now preparing to get out foundation already wired—wires incorporated into the wax itself. Of course, the idea is very old, for Capt. Hetherington and the VanDeusens accomplished this result some twenty years ago. But Mr. Weed proposes to go one step further, and provide a means for fastening the strands of wire to the brood-frame, top and bottom, or on each end, as may be preferred, something that has not heretofore been accomplished. It is proposed to furnish this product at the same price per sheet as medium brood is sold for unwired. But there will be this difference—the wired foundation will run about ten or eleven feet to the pound as against about seven feet to the pound for medium brood. In a small way this foundation will cost probably 8 cts. a sheet; and if there are ten sheets to the pound it will make it cost somewhere about 80 cts. While the machinery is not completed, Mr. Weed is very confident he will have the product ready soon. When it is ready we will make due announcements.

BUSINESS AT THIS DATE.

The first of May this year finds us up with orders, and a good surplus stock of regular goods on hand here as well as at our various branches and agencies, so that we are in position to serve our patrons very promptly. This is in sharp contrast with our condition a year ago this time, when the demand was such that we could not keep up, but were three to six weeks behind. The heavy winter losses in bees have been the cause of this slackness in trade just now. Still, our facilities have been greatly increased, as evidenced by the fact that we have shipped up to date this year seventy-seven carload shipments against fifty-two up to the same time last year—a gain of about fifty per cent. Up to this date last year we had run two months double turn, while this year we are running 10 hours a day, after having run 11 hours for about 3 months.

We call attention to our list of branches and agencies on one of the cover pages of this issue.

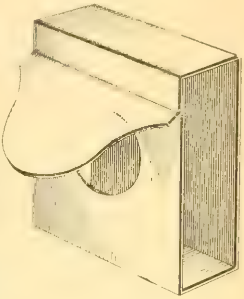
CARLOAD SHIPMENTS.

During the past two weeks we have shipped the fifth car for the season to our Syracuse branch. The second to our Northeastern branch at Mechanic Falls, Me.; the second to our Northwestern branch at St. Paul, Minn.: the second car to John Nebel & Son, High Hill, Mo. A car has gone to M. R. Madary, Fresno, Cal., and another to Buell Lamberson, Portland, Ore. We shall ship within a few days the third car for the season to our Chicago branch.

DANZENBAKER CARTONS.

We presume you have received a sample; but if not, send a two-cent stamp for one. These are meeting with considerable favor, and as the price is less than the old, we look for a large sale. We have, in fact, already ordered 78,000 of this style. We are prepared to furnish the following sizes:

4¼x4¼x2
" " 1$\frac{15}{16}$
" " 1⅞
" " 1¾, or 7-to-foot.
" " 1⅝
" " 1½
4x5x1⅜
3⅜x5x1½



PRICES.

100	$ .50
500	2.25
1000	4.00
5000	17.50
10000	30.00

If you want your name and address printed on cartons, add to above prices: 30c per 100; 75c per 500; $1 00 per 1000. For more than 1000, 50c per 1000 after the first thousand.

SECOND-HAND FOUNDATION-MILLS.

We have at this writing the following second-hand foundation-mills which we offer at the following prices:

One 6-inch Root mill, No. 2111; has never been used, but exhibited at several fairs; will make good thin super; several cells slightly damaged; price $10.00.

One 6 inch Root, No. 1858. This will make fair thin or extra thin; in good order; several cells slightly damaged; price $12.00.

One 6-inch Root mill, No. .05; one bad cell-point slightly flattened; extra thin; price $15.00.

One 10 inch old-style Root mill No. V. V.; round cell; price $8.00.

One 10-inch Root mill No. .01; round cell; medium brood; in fine order; price $15.00.

One 9-inch old-style Root, No. .04. This is one of the first mills we made; hexagonal cell damaged in one place only; price $10.00.

One 12-inch Root No. .02; 2-inch roll; round cell; in good order; price of a new mill is $36.00; will furnish this for $15.00.

One Root 12-inch; No. .03; round deep cell; price of a new mill would be $36.00; will furnish this also for $15.00.

One 10-inch Root mill, No. 1949; hexagonal cell; this has 2½-inch rolls and has been in use in our wax-room; in first-class condition for thin super. A new mill of this style is worth $30.00; will furnish this one for $20 00.

One 10-inch hexagonal No. 1959 for thin super. This has also been used in our wax-room, and has one bad cell; price $18.00.

Send for samples of the mills you are interested in, provided you intend to purchase, and state which ones you wish to see samples of, and we will forward them promptly.

Special Notices by A. I. Root.

SEED POTATOES.

The demand for early and extra early has been beyond precedent, and we have not a single one remaining earlier than Carman No. 1. Of these we have about 20 bushels; Carman No. 3, 12 bushels. Price, while these last, $2.50 per barrel; Ten bushels of Rural New Yorker, $2.00 a barrel; 25 bushels of Manum's Enormous, at $3.50 per barrel; 8 bushels of the Poor Man's Friend and 6 bushels of Adirondack at $2.50 per barrel. Should you order any of the above, please tell us what kind you would prefer if the kind you order is sold out.

THE THREE MOST PROMISING POTATOES AT THE PRESENT DATE.

Judging from our experience last year, I should say Bovee for extra early, Maule's Commercial for medium, Manum's Enormous for late. All three varieties have got a sort of "boom" about them that pleases me. They do not seem to be susceptible to blight, and are not affected much by scab; but I am sorry to say that none of them is equal in quality to the Freeman. Quality and quantity do not seem to go very well together in potatoes—at least so far as my experience goes. Mills' Prize comes next to Freeman in quality, and my neighbor who grew them last season says they are almost equal to any in quantity. We are going to give them a good test this year. Manum's Enormous seems to stand almost if not quite at the head with all of our experiment stations where it has been tested for a *late* potato.

LARGE ONIONS FOR GROWING ACORN-TOP ONION-SETS.

As we have quite a few of these on hand, more than what we wish to plant, we will close them out at $1 50 per bushel, instead of catalog price $2.50.

It is a little late now to send out strawberry plants, for most of ours are already in bloom. Better wait now until new plants are ready in June and July. We expect to send out plants, potted in jadoo fiber, some time in June.

THE TWO NEW EXTRA-EARLY STRAWBERRIES, EARLIEST AND DARLING.

As I have informed you, we decided not to list these in our spring catalog, because, even though they are *extra* early, they bore so few berries. Friend Thompson, the originator, insisted they bore a large amount of fruit in other localities, or during favorable seasons; but I asked for reports from those who had potted plants, but they did not seem to be forthcoming—at least not many of them. Well, just now I feel almost sorry I discarded them, because at present writing they are loaded with blossoms; in fact, I do not know that I ever had a strawberry on our grounds that made a better show of buds and blossoms than the Earliest and Darling. And, by the way, friends, you can seldom tell in one season nor even in *two* seasons what is to be the future of any new thing in the fruit and vegetable line.

FIRMING THE SOIL, AND SHALLOW VS. DEEP CULTURE FOR STRAWBERRIES.

At the conclusion of A. T. Goldsborough's new strawberry catalog we extract the following:

"I have for many years exchanged horticultural ideas with Matthew Crawford, Esq. In answer to my views on this subject he wrote on Nov. 21, 1898: "My faith in a firm soil increases every year. Last spring I had no plowing done, except when I wished to bury rubbish or manure. My best fall-set plants are on unplowed ground." The editor of the *London Gardeners' Chronicle*, in June issue, says: "All the finest examples of the strawberry I have yet seen have been grown on warm, shallow, and rather poor soil." Instead of letting the roots run down to China, bring them to the surface by a light mulch of any sort. After the fruit is set, you can feed as you would a coop of chickens, a little at a time, but often.

The whole catalog is certainly worthy of the attention of every strawberry-grower. Address A. T. Goldsborough, Wesley Heights, Washington, D. C.

FORETELLING THE WEATHER A MONTH AHEAD—A SLANDER ON THE WEATHER BUREAU.

A statement has been going out in the dailies, to the effect that the U. S. Weather Bureau says the month of May will be unusually stormy. You may be sure I pricked up my ears when I saw this. I cut out the clipping, and forwarded it to headquarters. I am informed, as I knew I should be, that the Weather Bureau had never made any such statement. It never undertook to tell during *any* month what the weather would be for the ensuing month; for Uncle Samuel is not in that kind of business, and never has been.

BETTER-FILLED SECTIONS.

I will give a little of my experience with the fence separator. I was very much taken with them from the start, and bought about sixty of your Ideal supers of Nysewander, of Des Moines, last season, and I like them very much. I get better-filled sections, especially at the outside row. I sent some to Des Moines and got 15 cts. per lb. They said it was the finest honey they ever saw, and the new deep-entrance hive is just grand.
H. J. CHAPMAN.

Kennedy, Ia., Feb. 24.

Advertisers' Department of Short Write-ups.

Buying for Cash.

The advantages of the cash-buying principle are much more highly appreciated than formerly. Present indications point plainly to the fact that at no very distant date the long-drawn-out interest-bearing account will be a thing of the past. Cash buying is a business short cut, it is the little path that leads across the fields. It saves business distance.

Not only that, it is a money-making principle. Buying for cash saves interest; interest—money—saved is money earned. Cash selling and buying has gradually led up to another method of conducting business, which is to sell direct from the manufactory to the consumer. This system possesses so many advantages that we can not stop to enumerate them. It is really the carrying out of the cash-buying plan upon an extended and enlarged form.

Goods are sent upon receipt of cash or are shipped C. O. D. with privilege of examination. Take for instance the Elkhart Carriage and Harness Mfg. Co., of Elkhart, Indiana. They sell every thing they make, direct from the factory to the consumer. Their terms are either cash with order or C. O. D. with fullest privilege of examination, and their experience is that the cash-buying principle is growing upon the people.

CONVENTION NOTICES.

The Northern Illinois Bee-keepers' Association will hold two sessions of its spring meeting—one at Mr. John Wagner's, near Buena Vista, Stephenson Co., under the supervision of the vice-president, and one at Mr. Oliver Taylor's, at Harlem, Winnebago Co., under the president, on Tuesday, May 16, 1899. Every one is cordially invited. B. KENNEDY, Sec.

New Milford, Ill.

A joint meeting of the Colorado State Bee-keepers' Association and the Denver Bee-keepers' Association will be held in room 33, second floor of the Capitol Building, in Denver, on Wednesday, May 10, at 10 A.M.
R. C. AIKIN, Pres.
FRANK RAUCHFUSS, Sec.

J. W. BAILEY, PUBLISHER. F. L. THOMPSON, EDITOR.

The
Western Bee-keeper
Is exclusively devoted to apiculture in the
ALFALFA REGIONS,
and to
ASSOCIATION WORK
of all kinds among bee-keepers; and also gives the main points of what the other bee-papers are saying.

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W. D. SOPER, Box 565, Jackson, Mich.

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Honey Column.

CITY MARKETS.

ALBANY.—Honey market well cleaned up, only a few small lots of comb and extracted left. We quote comb, 7@12, according to style and quality. Extracted, 5@7. Beeswax, 26@28. MACDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
May 8. Albany, N. Y.

DETROIT.—Fancy white, 12; No. 1, 10@11; dark and amber, 8@9. Extracted, white, 6@7; dark and amber, 5@6. Beeswax, 25@26. The better grades are getting well cleaned up, and the new crop will find a bare market. M. H. HUNT & SON, Bell Branch, Mich.
May 10.

CHICAGO.—Not anything of consequence doing; a little is being sold at prices that have prevailed for some time. White comb is scarce, but there is a surplus of dark. Best grades of white, 13; off in color, etc., 11@12; light amber, 10@11; amber and mixed buckwheat, 7@9. Extracted clover, 8; other grades of white, 7@7½; ambers and dark, 6@7. Beeswax, 27.
R. A. BURNETT & CO.,
May 8. 163 South Water St., Chicago, Ill.

NEW YORK.—Our market is in first-class condition. It is bare of extracted honey, and demand good. New crop is beginning to arrive from the South; and we would advise our southern friends to let their honey come along, feeling confident that we are in position to obtain better prices than for years past. We quote: Fancy, 7@7½; choice, 6@6½; fair, 5½@6; common, 55@60 per gal. Comb honey is well cleaned up. Some demand for white at 11@12; and 9@10 for amber. Demand for dark has ceased. Beeswax rather quiet at from 26@28. HILDRETH BROS. & SEGELKEN,
May 9. 120 & 122 West Broadway.

PHILADELPHIA.—Since the arrival of Southern vegetables, honey is selling very slowly. There are quite a few lots of comb, off grades, in the market. Extracted honey, for manufacturing purposes, is selling freely. We quote fancy comb, 15@16; amber, 8@12. Extracted white, 7@8; amber, 5@7. Beeswax, 28. We are producers of honey—do not handle on commission.
WM. A. SELSER,
May 8. 10 Vine St., Philadelphia, Pa.

CLEVELAND.—We quote our honey market to-day as follows: Fancy white, 13@14; No. 1, 12@13; fancy amber, 10@11; No. 1. amber, 9@10; fancy dark, 7@8. White extracted, 7@7½. A. B. WILLIAMS & CO.,
May 8. 80-82 Broadway, Cleveland, Ohio.

COLUMBUS.—Owing to Southern strawberries being plentiful, it attracts attention from honey, which, consequently, is dull. Choice No. 1 white clover selling at 12½; lower grades difficult to move at 8@10.
COLUMBUS COMMISSION AND STORAGE CO.,
May 6. Columbus, Ohio

FOR SALE.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60-lb. cans for $7.20. THE ARKANSAS VALLEY APIARIES,
OLIVER FOSTER, PROP.
Las Animas, Bent Co., Colo.

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We own two apiaries, and our bees are "hustlers" for honey. "All yellow."
Untested Queens, 70c; 3 for $1.80; 6 for $3.00.
Tested queens, $1.25.

I. J. STRINGHAM,
105 PARK PLACE, - - NEW YORK.

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For 1899 until you see my 39th annual catalog. A full line of hives and fixtures best adapted to our New England climate. Also best brands of **Comb Foundation and Section-boxes.** I have also made arrangements to keep quite a general stock of

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GEO. E. HILTON, Fremont, Newaygo Co., Mich.

QUEENS. Either five-banded golden or from imported Italian mothers. A few breeders at $2.00 each; tested, $1.00, or 6 for $5.00; untested, 75c, or 6 for $4.00. B. P. Rock eggs, 75c for 13. **CHAS. H. THIES, Steeleville, Ill.**

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50 Cents

to

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Tested queens, $1. Select tested, $1.50.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO

VOL. XXVII. MAY 15, 1899. No. 10.

STRAY STRAWS FROM DR C. C. MILLER

GOOD QUEENS can not be reared, according to M. Bellot, in *Revue Internationale*, unless the bees have a supply of, or can gather, fresh pollen.

I DON'T BELIEVE a word of that suggestion, page 366, that "the use of tobacco is on the increase among ministers of the gospel." Too much intelligence among them, if there were no other reason. [I agree with you.—ED.]

I'M WAITING for the "ample proof" of that new secretion S. P. Culley has discovered. "What he says appears very reasonable" to the editor, but not to me. But I reserve my usual right to change my mind if the proof is "ample."

THOSE "RAYS OF DARK" are something new, aren't they? p. 355. If Tabby sees at noon by rays of light, and at midnight by "rays of dark," will there not be a point of time between the two when the "rays of dark" will neutralize the rays of light, and Tabby will be stone blind? [That is beyond my depth.—ED.]

RARELY have bees wintered as well as the past winter, says *Revue:* few dead bees, light consumption of stores, no trace of dysentery. Somewhat different in this country. [According to the *Canadian Bee Journal*, bees wintered fairly well in Canada also — doubtless for the reason that, it being colder there, greater preparation had, as a matter of course, been made.—ED.]

IT SEEMS A QUESTION whether plain sections are better filled than old-style. I arise to say most positively and emphatically that they *are* better filled. Put in the same super old style and plain sections, both the same width, and if the plain don't outweigh the other when filled, then I give up wrong. ["Both the same width." Ah, yes! There's the catch. No, no one will dispute your proposition.—ED.]

IN VIEW of the fact that so good an authority as Mr. Cowan advises repeated boiling of affected honey, are we to understand that Harry Howe is mistaken in saying that spores will not vegetate in honey? [See Mr. Cowan's article elsewhere in this issue for answer to your question. But say, doctor, I had expected ere this to see you clear off the fence, on my side of the line. Better scramble over now while I keep Taylor off your coat-tails.—ED.]

HARRY S. HOWE gives in *American Bee Journal* a rather novel plan for stimulative feeding. In early spring he sets at one side of the apiary one or two hives with combs of honey from the colonies that have died; and when he has thus used up all such honey, he takes full combs from the colonies to put in these hives, thus letting them store the honey over and over. But say, Harry, if you do this in fruit-bloom, don't the bees work on these combs when they should be on the trees?

IF CRITIC TAYLOR does not follow his usual practice of closing his eyes to the faults found in *Review*, he will call attention to the repeated use of the split infinitive in April *Review*. And will Mr. Taylor kindly inform us what authority he has for saying he remembers *of* a thing? [Tut, tut, doctor. We were not to discuss infelicities of expression any more; or at least there seems to be a sort of tacit understanding to that effect. But principles and methods are proper subjects of criticism in a bee-journal.—ED.]

I SAID, p. 166, my bees had left drone comb unfilled in sections, while worker comb was filled. S. P. Culley says, p. 353, "Perhaps he had little or no drone comb in the brood-chamber, and the queen laid eggs in the section of drone comb." Drone comb *was* scarce in the brood-chamber, but the queen didn't lay in the section. The foundation didn't entirely fill the section, and what was lacking was filled out with drone comb, and that drone comb was left with shallow cells without eggs or honey, as if the bees would say, "These drone cells are intended for eggs, and we'll not put any thing in them till the queen lays in them."

EDITOR YORK and some 400 others started to write "stopt" for "stopped," and that sort of thing. Lately "thru" for "through" and some other changes have appeared in the pages of the Old Reliable. Now in the Chicago public schools the spelling is to be as follows: tho, thoro, thorofare, thru, thruout, prolog, etc. Evidently the time is coming when we who pride ourselves on being such good spellers will be left with no advantage for our years of labor in learning to spell. [We have often thought of adopting *tho* for *though*, and *altho* for *although*. We have for some little time used the short form for *program*, *catalog*, and perhaps one or two other words; but we hesitated to go further, in view of the fact that we do so much printing for other people; and two forms of spelling could hardly be used in one office. But we are in *thoro* sympathy with the movement for shorter spelling provided the changes are notmade too abruptly.—ED.]

YOU GIVE some pretty good reasons, Mr. Editor, p. 342, why I should give up comb honey and produce extracted. But ought not some one to supply the demand for comb? And is it not a separate trade to produce extracted? and is it better for me to leave the trade I've already learned? But aren't you wrong in thinking that extracted will usually bring 60 per cent as much as comb? Let's figure on the market reports. . . . Say, I've figured, and the figures support your view. But I'm not going to give up comb yet. [No, doctor, I did not mean that you should give up producing comb honey, by considerable, although my remarks might have implied that. But I do think it would be to your advantage to produce a little extracted in connection with comb honey; and I also believe that a shallow extracting super will get the bees a good deal more in the working fever in bait sections than in the comb-honey super.—ED.]

DIFFERENCE IN CLIMATE is not considered always as much as it should be. You say, p. 352, Mr. Editor, that C. Davenport and the Dadants have practically the same winters. What makes you think so? The Dadants are about 225 miles south of the southern boundary of Minnesota. They are about 60 miles south of Medina. But the distance north or south doesn't always tell the climate. I think the winters at Marengo, which is only 60 miles north of Medina, are more severe than at many points much further north. Many varieties of apples that are all right at Medina will not live here. Quinces and peaches will not live here. Only a few of the hardiest cherries and plums will stand the winters. Last winter was unusually severe. Fruit-trees were killed outright, as well as hardy roses well protected. A bed of the hardiest tulips is a rotten mass. [Yes, perhaps I was mistaken in not making more allowance for the distance. The locality of C. Davenport must be much more severe in winter; and that is doubtless the reason why he prefers the smaller brood-nest.—ED.]

I'VE 16 SUPERS containing the new foundation alternating with the old style, and I'm waiting to see what the bees say about it. Also twenty supers filled one side with old-style sections and separators, the other side with fences and plain sections. [Putting the two kinds of foundation in alternation in the same super is not the correct way, according to our experiments. It should be placed, one kind of foundation in one half of the super, and the other kind in the other half. What for? If one foundation is very much better than the other, when the two kinds are placed in alternation the poorer kind is helped along by the better next to it, because the bees have a disinclination to have every other comb built out better than the rest. There is a decided tendency on their part to fill out evenly all they do fill, in a bunch by itself. In making tests for the last two seasons we have found that the principle of alternation is not likely to lead to accurate results. I suggest, if it is not too late, that you change a part or all of those supers so that the thin base will be *wholly* on one side or half of the super and the common foundation wholly in the other half.—ED.]

IF THAT OLD FOGY, Stenog, would occasionally read a dictionary, he wouldn't ask such questions as that on page 343. My Webster, 47 years old, gives "bur," but "fuz" is not in it. And say, Stenog, what sense is there in wanting to spell "past" wrong because "pass" has two meanings, to go by, and to adopt? Why don't you insist on two different ways of spelling "out," when you say, "The light is out, and the blossom is out"? [Strictly speaking, there is no "right" way of spelling a word. There is what is called a conventional or established way, and that way is as binding as to call a spade a spade when we mean a spade and not a spoon. We read that "the Levite *passed* by on the other side;" and to substitute *past* for *passed* causes the reader to look twice to catch the meaning. Do you propose to spell all words alike that are pronounced alike, such as *peel* and *peal; quean* and *queen; rye* and *wry?* As for spending years in school learning to spell, that is an exaggeration. I don't believe there is a good speller in the United States who ever spent a week in learning to spell. If one does not learn to spell when he learns to read he will never spell. Extremely rare words may admit of a few exceptions. If you will rip up the whole alphabet from A to Z, and have a precise character for every sound, as we have in shorthand, I shall be much pleased. English spelling is very irregular, but no more so than French.—ST.]

ALL RIGHT, Mr. Editor; send on a few of those barns Draper wants tried, and I'll give them a fair show. I've always had a kind of uneasy feeling that one story with big frames *might* be better than two-story hives of smaller frames; but I don't want to believe it if I can help it. Ask Draper how many men I'll have to engage to carry one of those hives into the cellar. [We are preparing to send you some of those "barns." I have just been looking at those great big frames, and I could not help feeling that there is something in having great cards of brood all in one batch instead of having an equal quantity in two batches divided off by two sticks and a bee-space. The two sticks and the bee-space may have nothing to do with the matter except that the queen would lay more eggs under the former condition than under the latter. Like yourself, I do not want to think that the Dadants are right, but I feel a little afraid they are—especially so as they can show results, and have been showing them, for the last twenty years and more—not on a small scale, but on a large one, covering a large number of out-apiaries. And it is a little significant that all France seems to be following them, notwithstanding the conditions of climate and language among bee-keepers are so radically different. But those "barns" of hives are not so radically different from the ordinary ten-frame Dovetailed hive, which is the same thing exactly, only 2⅛ inches deeper; same cover, same bottom-board; same top-bars and the same bottom-bars; same tin rabbets; same supers; same every thing except length of end-bars and depth of side and end boards of body. The regular Quinby frame is 18½×11¼, outside measure; regular Langstroth, 9⅛×17⅝. The difference in length, then, is only 1⅛, while the difference in depth is 2⅛ inches. The Dadants have said that, if they were to start anew, they would adopt the Langstroth length and make the frame 2⅛ inches deeper. This would give about the same comb area, and yet give bee-keepers the same standard covers, bottom-boards, supers, etc. Lest some one may accuse me of starting a new fad, I will say I do not indorse any such change at present. I want the evidence of my own senses first.—Ed.]

PICKINGS
FROM OUR NEIGHBORS' FIELDS.
BY "STENOG."

"These showers bring flowers to gladden our bowers,"
Say all of the diligent bees;
"So let us all hours, with all of our powers,
Get honey, and live at our ease."

AMERICAN BEE-KEEPER.

The editor advises having a fine comb handy by in the apiary to extract stings from the scalp.

* * *

Mr. W. T. Flower says there is nothing gained by uniting weak colonies in the spring. It means the sacrifice of one queen, and two queens will lay more eggs than one queen.

* * *

Mr. Alley says too much packing over bees is detrimental. He speaks of one bee-keeper who piles mats and quilts over his bees till the pile is a foot thick, and this man has never had a fairly good colony of bees in the spring.

* * *

Mr. A. J. Gray, of Birchton, N. Y., says he purchased, about seven years ago, 42 Carniolan queens, and introduced the most of them into Italian, black, and hybrid colonies, of which he had about 100 in the apiary. From that time till now he has been so well pleased with the Carniolans that he has, as far as possible, been changing to that stock. He keeps his stock pure by introducing queens from Carniola.

* * *

Mr. Alley speaks of Mr. Doolittle's honey selling at 20 cts. a pound, and says he has sold his at 25 cts. He attributes this all to the ignorance of the buyer. Last fall he could have bought the best Vermont white clover honey at 13 cts. in Boston, and that is the best honey in the world.

* * *

If one man is first on a given territory, has he a right to try to keep other bee-keepers away? Suppose the coming of the second apiary stocks the field so that neither man can get any surplus, as is often the case, how much better off is the second man for exercising his right to keep bees there?

* * *

I notice for the first time that the signatures of writers in the *American Bee-keeper* are engraved from the original writing. This looks quite realistic, and Mr. Doolittle is much pleased over the idea. He also speaks rather left-handedly against leaving off the address of a writer. I confess I must fully agree with Mr. D.; for to leave off the address seems to rob an article of much of the interest that is due to personality and location. If all the people in a convention were to be boxed up so that only the voice could be heard, it would be a dismal place for me.

* * *

Mr. Doolittle reproves Dr. Miller very gently for not wanting *Apis dorsata* to be fooling around in the neighborhood of the doctor's home. He asks: "How came you, doctor, to have a right to any territory exclusively for your own use in this world? Did God give you a right to turn the rays of sunshine on the flowers around Marengo, that they might bloom for your Italian bees and not for *Apis dorsata?*" The same question might have been asked about the introduction of common rabbits into Australia in 1864. They increased in weight fourfold, and from a coopful to untold millions in numbers. The government spent millions of dollars in killing them, but to no purpose. Locusts were a blessing in comparison. Dr. Miller has a right to feel some degree of fear in view of such facts. Yes, God has given all men a full right to exercise what they deem to be prudence, and one has as good a right to keep an unknown bee off his place as he has to put up screen-doors to keep out flies. In point of fact, however, *Apis dorsata* will, in all probability, flourish about as well in Marengo, Ill., as lemon-trees would there outdoors.

AMERICAN BEE JOURNAL.

Concerning robbing, Mr. Harry S. Howe says that, when the bees start to rob a place, if we can make them think they have got it all, there will be no further trouble; while if we cover up or take away the honey they will keep on looking for it. That's a good way to treat teasing children too.

In the report of the Vermont Bee keepers' Convention it is said that Mr. Boardman sprayed 75 trees with 60 gallons of water and 1½ lbs. of Paris green. He thus secured 150 barrels of apples. He sprayed the first time just as the buds began to open, and the second time just after the blossoms had fallen.

* * *

Mr. J. H. Tichenor, of Crawford Co., Wis., believes that we should do all we can to get farmers to keep at least a few colonies of bees. His first reason is that farmers are learning that they must spray their fruit-trees, and in so doing are slaughtering bees by the wholesale. If every other farmer owned one colony each, just a hint to them that they might kill all of *their* bees would be sufficient to prevent this evil.

* * *

Cogitator laments the advent of a batch of new spells at the hands of Mr. York; but 'Tater says he is too old to get rid of his orthographical prongs now; but adds he is not too old to find fault, and does find some with the word "thoro." He thinks the word should be left alone or spelled "thuro." He observes, "Don't rile us with what impresses the eye as a bran new [*brand*-new?] word, with its first vowel masquerading in the place of another vowel."

* * *

Some one asks Dr. Miller if he ever becomes tired of answering questions. He likes to do so when the questioner is present so all the bearings may be understood; but when correspondents ask questions in such a way that he can hardly tell what is meant, "that tired feeling" comes on. Sometimes the penmanship is so poor that he can hardly make it out. But as a whole he seems to enjoy the work Few of his readers realize the amount of work he puts on his department of "Questions and Answers."

* * *

At the Vermont convention Mr. Leonard said it was not all the dark honey that was made the first of the season. He had some honey spoiled by the bees bringing in something to stop cracks with, just as the season was closing. He did not know where it came from, but thought it was the same as the last run of sap—the honey that was gathered last. It was sometimes colored by the bees using old comb and capping, and sometimes by the bees taking honey out of the brood-nest, and carrying it upstairs. It was not caused by the bees walking on it, as he had left the honey on till time to pack for winter, and it was nice and white.

* * *

Mr. F. L. Thompson says, in the *Progressive*, "Sad experience has taught me that, all things considered, it is not the best policy to follow the leaders, but to cultivate an independent judgment in the matters which touch the pocketbook." Mr. York shows up the fallacy of that by adding, "As Mr. Thompson is one of the leaders, some will probably make a near application of his teaching by not following his present advice." I know by correspondence the light esteem in which Mr. Thompson seems to hold all rules concerning spelling, punctuation, prosody, and syntax. Really, I do not believe he would unqualifiedly indorse the multiplication-table without first putting a coat of varnish on it, or something of that sort. But it's a fortunate thing for us that Mr. T. is very well qualified to act as an independent worker, even if one can not indorse all he says.

* * *

Concerning barrels for honey, a honey-dealer writes to the editor: "A barrel is a very unsatisfactory honey-package for the man who handles it in the last instance. Nineteen times out of twenty the barrel must be taken apart to get the honey out." In reply to this, Mr. York says he has often "wished that those who put up their honey in barrels could be compelled to buy and handle such honey for a while. After they have had a little experience with the stuff leaking out, and a number of pounds soaking into the wood—all the loss, of course, to come out of their own pockets—we believe they would be done with putting honey into barrels or wood of any kind. Tin is the thing for a honey-package. In some instances half a cent a pound more can be secured for honey in tin."

FOUL-BROOD GERMS.

The Difference between Spores and Bacilli; some Misconceptions Corrected; the Latest Method of Treating Foul Brood as it is Practiced in England; Various Antiseptics Considered; Washing Out Foul-broody Combs with Water under Pressure a Dangerous Practice.

BY THOS. WM. COWAN.

Since I wrote to you on this subject I have received GLEANINGS for April 15, and in it I find two letters in reference to which I should like to make a few remarks. Mr. Harry S. Howe, writing with regard to the several boilings in order to secure the sterilization of honey, points out that "the spores of *Bacillus alvei* do not develop in honey, nor can they live in honey except in the spore condition." I would agree with this entirely if it were restricted to honey in a *normal* condition. But it would indeed be a bold person who would venture to say that honey is always in this state, and that it can not be in such an abnormal condition as to form a suitable medium for the germination of spores of bacilli. We know the living spores remain dormant, and bacilli can not grow in honey, because in a normal condition it has an acid reaction; but should it, from any cause, become even slightly alkaline, there would then—if other conditions obtained—be no hindrance to their germination and development. It was with a view to the possibility of such a condition that I wrote advisedly in my last letter respecting several boilings of honey—"*supposing* a nutrient medium to exist in the honey, the unaffected spores would germinate into bacilli, and could be destroyed in the next boiling."

On page 310 there is "A new treatment of foul-brood" by our old friend Rambler, and a recommendation to uncap a comb affected with foul brood, and wash it under a faucet of water running with considerable force. I should like to point out the great danger of this plan. The combs that are uncapped contain thousands of spores; and in washing, many of these would be driven out of the cells and spread by the running water, we know not where; and as they are not destroyed they are at any time ready to re-start the mischief. When the combs are in this condition it is always safer to burn them, as we thus destroy all the spores. Then as to formalin, I do not think it would have any more effect upon the spores than any of the other drugs have, although it may be equally efficient in destroying bacilli. It seems to me that, in many cases, the non-success of drugs has been owing to not properly understanding the great difference between spores and bacilli. Now, in any inquiry into the influence of one drug or another on micro-organisms, it is necessary to bear in mind that the influence of certain conditions on the micro-organism may be a twofold one. First, the condition may be unfavorable to the growth of the organism; and, second, the condition may be fatal to the life and existence of it. The second condition involves, *a fortiori*, the first; but the reverse is not the case. A great deal of confusion has arisen on this subject owing to the failure to distinguish between these two propositions. We constantly hear of this or that substance being an "antiseptic," which means that it is inimical to the growth of micro-organisms, or that it is a "germicide," meaning that it kills the organisms. The scientific man, of course, knows and understands the difference between the two; but the great bulk of people do not, therefore they expect drugs to perform impossibilities. I see Rambler calls formalin an antiseptic, therefore it is probable that it will prevent the growth of spores only while in contact with it, or kill the bacilli. This is precisely the behavior of all the other drugs used, and they can do no more. Spores are invested by a thick double membrane; the external sheath is supposed to be cellulose, and the internal one probably of a fatty nature, both being bad conductors of heat. It is this double membrane that gives spores this great resistance to high and low temperatures, to acids and other substances. I do not think any amount of soaking in water would render the spores open to the influence of diluted formalin. Now, we know there are many antiseptics, and these can be used effectually against foul brood. Carbolic acid, phenol, thymol, salicylic acid, naphthol beta, perchloride of mercury, and many other substances, even when considerably diluted, prevent the growth of bacilli.

Now, we have had considerable success in England in our treatment of foul brood, which involves the use of drugs. We call this an antiseptic treatment because it is the same in principle as the antiseptic treatment in surgery, which has made it possible to perform with success the marvelous operations of the present day, and such as could not have been effected without almost certain loss of life from blood-poisoning induced by the growth of various micro-organisms. We insist on an antiseptic always being present in the hive or in the food we give to our bees. No syrup or honey is given without first being medicated, and the antiseptic used kills any bacillus that may be growing, or prevents the spore from germinating, although it does not kill it. Then we know that there are certain chemical substances which evaporate at the ordinary temperature of the hive, and whose vapors prevent the growth of bacilli, although they do not destroy them. Among these are eucalyptus, carbolic acid, phenyle (or creolin), lysol, camphor, naphthalene, and others. For convenience and economy we use naphthalene, and have some of this always present in the hive. Our treatment is this: If we detect the disease in its earliest stage, before any of the affected larvæ are capped over, we simply feed the bees with syrup medicated with naphthol beta, because at this stage there are no spores present. The medicated syrup is used by the nurse-bees in preparing food for the larvæ, and in this way the bacilli are destroyed. It is, however, seldom that the bee-keeper is sufficiently expert or alert to detect the disease at this stage, but more generally notices it only when the combs have irregular patches of brood, with sunken and perforated cappings to the cells containing the coffee-colored mass inside. In this condition the cells are crowded with innumerable spores, and the treatment just mentioned would not have the slightest effect upon them. If the colony be weak we destroy the bees, combs, and quilts, and disinfect the hives. We thus destroy the spores and so remove the source of infection. Should the colony be strong in bees we make an artificial swarm of them, confine them in an empty hive, and feed on syrup medicated with naphthol beta. We use this drug because it is non-poisonous or corrosive, and has no odor repugnant to the bees, is a powerful antiseptic, and can be used in great dilution, thus rendering it economical. The frames, combs, and quilts are then burned, and the hives disinfected by being either steamed or scrubbed with boiling water and soap, and then painted over with a strong carbolic-acid solution. The bees are confined in the empty hive for 48 hours, by which time all the honey they may have taken with them will be consumed, and such of the bees as are diseased will have died off. Those remaining are then put into a clean hive furnished with full sheets of comb foundation, and are fed with medicated syrup for a few days longer.

With this treatment, when faithfully carried out, we have had considerable and very gratifying success. The whole secret of this success lies in having the drug ever present to act on the micro-organism, and either kill it or prevent its development and growth. I do not see why formalin, if used in the same way, should not be as efficacious.

[I am sure we bee-keepers of the United States are exceedingly obliged to Mr. Cowan for the valuable information he has given us, and for the clear way in which he has discriminated between spores and bacilli.

As I understand him, the purpose of medicating syrup fed to bees is to kill the spores immediately on their entrance to the bacillus form, as well as the bacilli themselves. Drugs can in no sense kill spores; but if the syrup is medicated with the proper antiseptics, when the spores do hatch (if I may adopt an unscientific term) the microscopic life is killed at once.

This naphthol beta is something that I believe American bee-keepers can use with profit, especially those who have had foul brood in their vicinity or at least have had it in years gone by, and are troubled with its reappearance occasionally. If every year all the syrup fed to the bees in such apiaries is medicated with naphthol beta, the time will come when the last traces of the disease, even in the spore form, will be wiped out.—ED.]

FOUL BROOD.

Danger from Improper Diagnosing.

BY W. A. H. GILSTRAP.

Mr. Root:—On page 224 you think it is Prof. Cook who thought Mr. Jackson had no foul brood. Yes, it was "our own Prof. Cook." I am not sure it was foul brood, but in common with many others I believe it very confidently. Repeatedly I have heard Mr. Jackson give Prof. Cook's words on receiving a sample of the diseased brood, which, as my memory serves me, is this: "I do not think your bees have foul brood; in fact, I state positively that they have not."

I suppose from the language used that he judged from appearance without using a glass; but "they died; ah, they died!"

Mr. Jackson is a venerable gentleman whose word has never been questioned that I know of, and I believe his photo would be accepted by any physiognomist as a splendid type of honesty. He never questioned the honor of Prof. Cook, neither do I.

J. W. Paine, of Selma, the Fresno Co. Inspector, and the writer, evidently made a bungling job on Mr. Paine's bees, and the Tulare Co. inspector did as bad or worse with Q. L. Abbott's bees. To explain these cases would probably be unprofitable.

Had I thought you would think so quickly that I referred to Prof. Cook, his identity would have been better hidden. The aim was to show that it is unsafe for a scientist to judge without a glass, or for any one to suppose that this fatal malady (or what resembles it so closely) could recover by climatic influence when extracting honey. If it takes an expert to detect this deadly enemy, with a microscope, our case is almost desperate.

Grayson, Cal, April 3.

This was referred to Prof. Cook, who replies:

DIAGNOSING FOUL BROOD WITH A MICROSCOPE IMPRACTICABLE ON THE PART OF THE AVERAGE BEE-KEEPER, AND WHY; THE LATE RAINS IN CALIFORNIA.

Dear Mr. Root:—I wish to thank you and Mr. Gilstrap for your courtesy in calling my attention to the article on page 224 of GLEANINGS, and giving me opportunity to reply to the same. I have had a great many inquiries regarding foul brood since I came to California, and so of course I do not remember Mr. Jackson's sample. I can say, however, that I am always very careful before expressing an opinion in any such case. If I wrote Mr. Jackson that his bees positively had not foul brood, I feel very certain that there were no signs of it in the sample sent. I regret exceedingly if any thing I wrote led to such disastrous results, but I am very positive that, if he sent me a sample of foul brood, I could not have been mistaken in my diagnosis.

You are quite right in the opinion that the microscope test is not practicable for the ordinary bee-keeper. A good ¼-inch objective will show the bacillus; but the latter has to be stained, and this requires microscopic dexterity. A good microscope could be had for from twenty to thirty dollars—one that would bring out these germs; but the skill and dexterity required in manipulation and determination would make it of little use to the average bee-keeper.

But I do not think it is necessary to use the microscope to determine the presence of foul brood, especially when in the active state. The brown ropy mass in the cells is a sure indication that the disease is present; and if no dead brood shows this I should unhesitatingly declare the disease absent. If we add to this the characteristic odor, the sunken cap, and the perforations through the latter, we may be absolutely sure of the disease, without the microscope. I have often received cases with dead brood where none of these symptoms were present, and in such cases I have felt warranted in pronouncing the colonies exempt. Of course, it may be that there was foul brood in the apiary, but not in the sample sent. I can make no specific explanation, as I do not remember the special case.

I do not think that foul brood is very apt to leave an apiary when once established. I have known several apiaries in California entirely ruined by it. I would not say, however, that bees might not recover from this trouble, though I have always had my doubts. Some of the best bee-keepers in California have assured me that they have known it to be present, and afterward disappear.

Although we have had rains of late, we have had less than seven inches for the season. This is only half of our average at this place, and only about half of what is generally supposed to be requisite to secure any honey crop. I presume there will be little honey taken from this section this year, yet I think we shall have to have experience to *know*. It is possible that, even with so light a rainfall, it might come at such a time as to secure a honey-flow. I think most of our bee keepers about here despair of any paying crop this season. They feel that, if they get enough to keep the bees, it will be all they can expect. I know of several who have taken their bees north, in the region of the large alfalfa-fields. I saw our friend Martin in Los Angeles last Monday. His bees are between Los Angeles and Santa Monica, and he tells me he has hopes of a partial crop, though he spoke of others, who have had many years' experience, who have given up all hope of any honey for market this season.

Last year we had about the same rainfall as this, and got almost no grain crop in this vicinity. This year we shall have quite a grain crop. It is to be hoped that there may be a light change in the honey harvest.

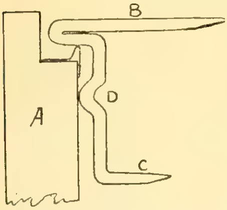
Claremont, Cal., April 26. A. J. COOK.

VARIOUS ITEMS.

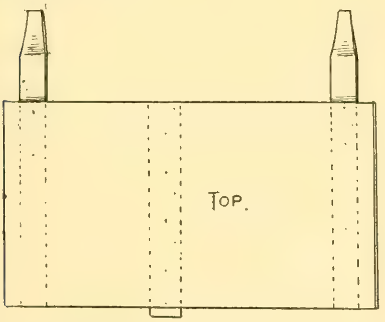
A Novel Frame-support; Hive Doorways; Ball-bearing Extractor; Gearing; Deep Dadant Hives; an Easy Way of Making Increase; those Honey-leaflets; Candied Comb Honey; Rambler's Skunks.

BY E. H. SCHAEFFLE.

Inclosed please find sketch of staple for supporting and end-spacing section-holders and frames. With the lower point clinched fast, the staple could not be loosened by usage.

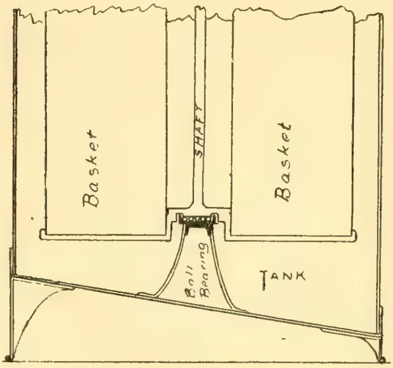


For a metal frame-spacer, cut from a sheet of lead ¼ inch thick, pieces with a face 1 inch long, and the required width. Set these close up to the top-bar inside. The 1-inch face will prevent the spacer from becoming entangled in the meshes of the extractor, while its soft material will not dull the edge of the uncapping-knife.



For convenience, and on account of irrigation, toads, ants, and grass, my hives are set up on scantling, 2 in. above ground. I find an extra alighting-board, like the inclosed sketch, a great convenience to the bees. On raw days they tumble down on it, lie there for a minute, and then crawl into the hive, while those that alight in the grass lie there and die, unable to recover from their chill. On warm working days the board is covered with alighting bees, and it is necessary to drop the front edge so they won't strike it coming in. As the board is removable, it is not in the way in moving the bees.

The Cowan extractor is geared too slow, and there is not sufficient depth under the baskets. Each season I have a large per cent of very heavy wax-like honey. To extract it the extractor must be run at a very high rate of speed, and the same kept up for some time, which is very tiresome work for an invalid. I have secured an old-style dentist's foot-treadle, with heavy driving-wheel, and turned it and the extractor over to the tinsmith; but he reports that the sides of the extractor are too light to fasten any thing to, so I must devise some other method of securing the extractor quickly and securely to the floor. My extractor rests on the same floor I uncap on. When the extractor is full I slip the hook of the pulley under the bail of the extractor. With two pulls of the rope it is up to the level of and on to the table adjoining, which is just high enough to hang a wire gauze strainer on to the faucet, and slip a can and funnel underneath. I prefer this to standing on a platform while extracting, as I can sit down to it.



An extractor should hold at least five gallons below the baskets, so as to fill a can with each extracting. As it is, the honey overflows the socket that the center-rod rests in; the fine iron mixes with the honey, runs out, and spoils that lot. Can't that socket be raised 6 inches above the baskets, and the weight be supported on ball bearings? That would make it run lighter, wear longer, and always have it out of the way of the honey below.

This is the season of the year when queenless hives can be detected by the bees not carrying in pollen. Don't take my word for it, or allow the theory of another to influence you, but open the hives and prove it. Make your examination early in the morning.

I have concluded to try some hives built on Mr. Dadant's suggestion, 12-inch-deep bodies, and 12 frames, for extracting; and I will try an extracting-super of the same depth. Among my pick-ups is a hive with frames 14 inches deep. For several seasons past I have used it as an extracting-super, and it is always the best. This season it is full of honey while the bees in the other shallow supers have hardly got started. I believe the bees prefer to work on one solid comb, to the same space divided up by wooden bars among several supers. I know this is the case with comb honey, as I can produce one-third more honey in 2-lb. sections, without separators, than I can in 1-lb. sections with separators.

Owing to the two past dry years, and my inability to look after my bees in person, I have, in common with most California bee-men, lost about half of my bees, as I can not look after them myself, and build them up a frame at a time. I am doing it in a wholesale way by placing on the hives, early in the season, other hives filled with empty brood-combs. As soon as the queen has these nicely started with brood the top hive is slipped on to a bottom-board and set in another part of the apiary, care being taken that each brood-chamber have brood not over three days old. In this way I shall have twice the number of hives, all strong, long before swarming-time, and in time for the best honey-flow. Now, don't tell me that I ought to do better than that, "queen the hives," etc., for *I* can't do it, and so do what *I* can.

The present honey-leaflet wants to be shortened and spiced. No one but a bee-keeper would ever wade through it. I find a better way is to paste the best recipes on the back of the cans that you retail honey in. That reminds me that, for the first time, I have secured a honey-can that suits me. These are the same long flat pattern that the maple-syrup canners use. It makes a very neat, large-looking, and excellent seller. I have them made in 2, 5, and 10 pound sizes. What I want now is a glass jar to hold 12 fluid ounces or 18 ounces of honey, with "Pure Honey" and a bee-hive blown in the back, but the amount of the contents *left off*. Our merchants won't handle a jar that has the quantity contained blown in the back, as it interferes with their getting their price; nor do they want it to hold over 12 ounces. Where can I get this jar?

To melt sugared comb honey, put one tablespoonful of water, to each pound of honey, in a pan; add the combs; set it in the oven, and maintain just heat enough to melt slowly the combs. When they are all melted, set the pan to one side; and when the wax is a solid cake, punch a hole through it along the side of the pan; drain out the honey, and then melt your wax into a cake. If care is taken not to get the honey too hot it will be found uninjured by the melting.

Rambler complains of skunks. He does not say which breed, but I take it he refers to the four-legged variety. If so he can get rid of the pests by strychnining a piece of comb containing brood, and placing the same about four inches under the ground, in front of the hives. The keen scent of the skunk will enable him to find it, and the strychnine will do the rest. "Rest" is a good word, and I will take and give your readers one.

Murphys, Cal., March 29.

[Your frame-support would doubtless prove very efficient; but one objection would be that it would give very slight hold for the hands while manipulating; and frames in the hive would have a tendency to swing flippity-flop (when hives are handled) unless spacers were used.

It is very important in chilly weather, as you say, to have a means of ingress to the hive, by which the bees can crawl from the ground clear into the entrance. Without such provision, thousands of bees are lost during chilly weather. We know that from our own experience here.

We have been experimenting with ball bearings in extractors, but as yet we have not quite settled on any thing that suits us. We have determined this much: That such a form of bearing should not be in the bottom of the extractor, to be smeared over with honey. We connected one such extractor, having a ball bearing, to the line shaft, and let it run a week. Then we lubricated the bearing with doses of honey, with the result that the bearing was soon gummed up, and practically worse than nothing. We have made some large Cowan extractors with ball bearings *on top* of the cross-arms; that is, the weight of the reel and combs are supported on a ball bearing that is clear up and out of the way of the honey. The bottom of the reel is held by a bearing that merely holds it in position, but does not hold the weight. Such a form of extractor we believe to be an improvement; and before another season we shall probably have it on all of our large extractors. It will be of no particular advantage, however, on our small machines.

With regard to gearing, we have to strike an average, as nearly as we can, for bee-keepers everywhere. Three-to-one gearing, on a large machine, is a little too high and requires too much power for bee-keepers who extract honey as heavy as 11 pounds per gallon. It is possible that we ought to have two sets of gears; but that would necessitate considerable expense, and the construction of a special cross-arm, to say nothing of a large gear-wheel that would stick up more or less in the way.

When we get a little more time we propose getting out a sort of pictorial honey-leaflet that will contain very few words, and represent the art of producing honey, from start to finish. It will be named "Honey, from the Hive to the Market." I have just ordered some special instantaneous photographic films; and I expect, in a few days, to take a series of snap-shots representing several of the steps in the production of comb and extracted honey. The story now told in type will be pictorially represented in half-tone.

But before we begin on the work we shall be glad to receive suggestions so that the new honey-leaflet may be made to fill exactly a "long-felt want."

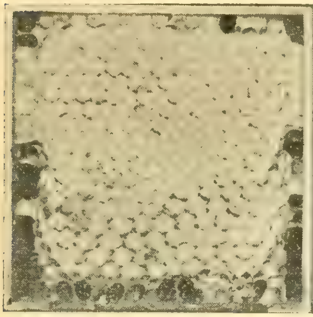
I omitted to state that the new leaflet will be almost solely for the information of *consumers*. Of course, the price will have to be a good deal higher than that of those we have been selling during the last year or so.—ED.]

GRADING BY PICTURES.

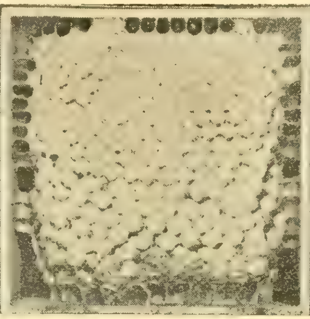
Experience of a Honey-seller and a Honey-producer; the Western Grading and the Eastern Grading.

BY S. A. NIVER.

Mr. Editor:—The convention of bee-keepers' societies of the State of New York assembled in Geneva, N. Y., last January, and appointed me as a committee of one to formulate a plan for grading comb honey by the illustrated or picture method, to be submitted for their consideration with a view to adopting some uniform system of packing, marking, and quoting prices.



" FANCY "



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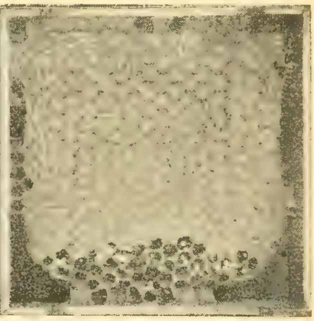

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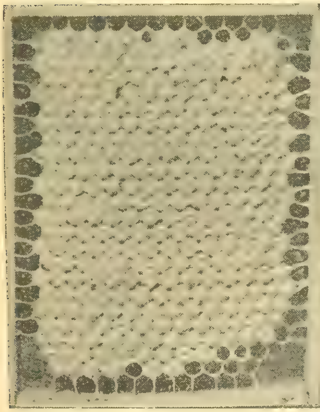

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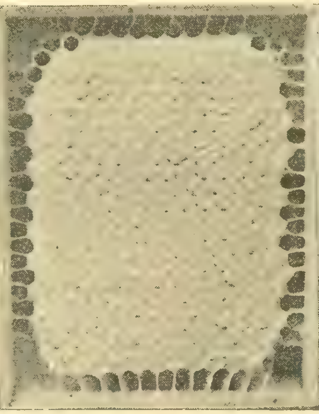
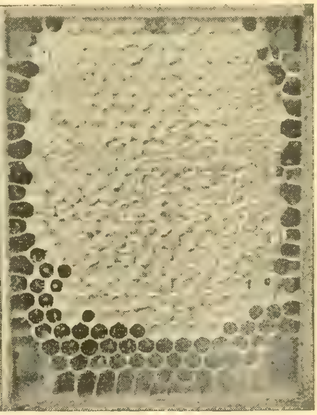


" NO. 1."



" NO. 2."

After studying the subject, and consulting other bee-keepers as far as practicable, I had photographs made of two styles of sections—the standard 4¼×4¼, and the " Long Idea," in this case 4¾×3¾, which The A. I. Root Co. kindly prepared for printing.

This method simply contemplates deciding or guiding us in grading according to finish—that is, filling and sealing, the color and quality having designations of their own.

The first and most important point to decide upon is the place of beginning; and it seems plain that it is at the lowest or poorest grade, that dividing line between what shall be packed and marked No. 2, and what shall be sent to the extractor. After that decision is reached it isn't difficult to select the other two, so that the samples will represent the poorest allowed in three evenly graduated divisions.

My experience as a " knight of the grip " and as a producer of comb honey convinces me that the No. 2 in the illustrations shown below (" or beside or behind our intrinsic existence ") is poor enough; and in the best interests of both producer and consumer, any grade below that should be consigned to the extractor.

Having decided on the starting-point, the zero, how many grades shall we have above it? As few as possible in the interests of clearness. A glance at quotations in the leading markets, as shown in the bee-publications, reveals a mixed multitude without form, regularity, or clearness. On the same page one firm quotes 4 varieties of white honey (and nothing else), while another quotes two kinds of white, and lumps the rest as "dark." The average bee-keeper in this location doesn't extract much consolation from such uncertain sources. The commission man is just as dissatisfied with the existing state of affairs as we bee-keepers are, and is ready to co-operate heartily in any feasible plan to remedy the trouble Mr. Segelken's valuable article on page 263 is in evidence on this point.

I believe that three grades will be nearer right than any other number, always remembering that this refers to "finish" only.

Now as to directions for loading and firing this combination. It would seem as if there would be little need of any thing besides the pictures; but perhaps it is better to say too much than too little in this case.

First, select a sample "No. 2" section by comparing with the pictures, which will represent the poorest section allowed to be packed. Then select the other two samples in the same way, or the better way of comparing sections until the three graduate evenly, which these pictures fail to do exactly. Now you have before you three pattern sections, which represent the poorest allowed in each grade. "Fancy" will consist of the finest-looking, best filled and capped sections to be found in the crop, but none presenting a poorer appearance than the sample section. No. 1 will consist of sections just a shade below "Fancy," and in like manner none poorer than sample section. No. 2 will consist of sections a shade poorer than No. 1, but none poorer than sample, the rest of the crop to be extracted for bait sections. Color and quality are to be designated by name. For example, Fancy White, or No. 1 White, Fancy Mixed, or Fancy Buckwheat, or No. 2 Dark, etc.

The advantages of this system are many and varied. If adopted generally we should know what is meant by quotations. Honey packed this way can be sold by *count* or weight as preferred. The retailer would find no culls left on his hands, or salable only at a reduced price, as is the case where all sorts—good, poor, and indifferent are packed in the same crate.

There, Mr. Editor, the matter is up for debate. Let us hear from the brethren.

Groton, N. Y., April 24.

[Having been the first I believe who suggested grading by photos or pictures, the idea having come to me in conversation with Mr. S. A. Niver, who was showing me how he graded his honey by setting off pattern sections, I feel greatly interested in this matter. A mere printed description of the grade admits of too much variation of interpretation by different ones. A picture is absolute.

It seems that this idea of picture grading was before the Colorado State Bee-keepers' Association that met in Denver Nov. 30 and Dec. 1 and 2 last. Instead of taking the scheme of the Washington grading as the basis they threw that aside and adopted a distinct method, and it is set forth in the two following very simple rules :

No. 1.—Sections to be well filled; honey and comb white; comb not to project beyond the wood; wood to be well cleaned; sections to weigh not less than 21 lbs. net, per case of 24 sections; but cases in lots must average 22 lbs. net.

No. 2.—Includes all amber honey not included in No. 1; to be fairly well sealed, and not to weigh less than 18 lbs. net, per case of 24 sections.

Culls.—All cull honey shall be sold in the home market.

This scheme of grading is made the subject of an article by F. L. Thompson, in the *Bee-keepers' Review*, supplemented by some half a dozen pictures of each grade. As there is very little if any buckwheat or dark honey in the West, the idea of a fancy amber or a fancy buckwheat is not considered necessary or feasible. A No. 1 honey, according to this grading, is one which is well filled, *and white*, and a No. 2 is one which is off in color, or defective in filling.

Such a scheme would not be practicable in the East, where buckwheat is more highly prized by a large class of consumers than the best white honey that was ever produced. The general basis of the Washington grading must be preserved, whereby there can be a Fancy No. 1 and 2 Buckwheat, Fancy No. 1 and 2 Amber, Fancy No. 1 and 2 White. With this general scheme in view it appears that the last convention of bee keepers in York State authorized Mr. Niver to formulate a plan of grading comb honey by the picture method; and the pictures set forth the result of his work. In a private letter some little time ago, he said he was not able to obtain ideal sections of any of the classes for the photos, for the market had been pretty well cleaned out; but after a good deal of hunting he finally found what would be fairly representative, according to his notion, of each class. Contrary to the Colorado system of grading, each one of the classes or grades above shown would apply equally to dark amber and white comb.

Mr. Niver believes in picking out, if I understand correctly, pattern sections that are *below the average* in general appearance, of each grade. When I visited Mr. Morton he (Niver) showed me several thousand pounds of "Fancy" with the cells sealed next to the wood; but he did not believe in making sealing to the wood an essential feature, as that was carrying matters a little too far, for the reason that the great bulk of otherwise fancy honey produced by the average bee keeper would have to be thrown into the No. 2 grade, and would have to be sold, as a matter of course, for less money.

If there is any criticism I could offer, it is that No. 1 and Fancy are too near of a grade. If I were grading I am not sure but I would put No. 1 with Fancy, and *vice versa*. There ought to be a greater difference. Still, if one will look sharply he will see that No. 1, while it is perhaps a trifle whiter, is not as well filled as the Fancy. I refer to the tall sections.

In view of the fact that the general scheme of grading is so very different from that of the York State bee-keepers, it might be necessary to have an Eastern and a Western grading. Owing to the difference in localities I do not see how we can well avoid having two classes of grading. The bee-keepers of New York would never be satisfied with the Colorado system; for "a mighty howl" would be raised as soon as it has proposed to put their fancy buckwheat into the second grade. In certain portions of York State, buckwheat is almost the main crop; and in some markets it will sell for the same price.

RAMBLE 167.

Bee-keeping in Tacoma, Washington.

BY RAMBLER.

Feeling that I had been amply soaked in Portland I concluded that, if I had to take any more, a Tacoma soak would be equally pleasant, and also a change. My wheel and I boarded the Northern Pacific R. R. for that city, 145 miles distant. While on the journey the winds blew, the rain descended in torrents, and, as a grand finale, our car windows were bombarded with hail. Humid Nature here revealed her handiwork in the density of the growth of the forests. The little water-courses were plentifully lined with willows; little rear-wheel steamers were plying on these small streams, and in some places there was barely room for them to squeeze through the bushes. Ferns (that always indicate moisture) were to be seen everywhere. There were but few farming communities along the route, but any number of saw-mills and lumber-camps. Those grand forests of spruce, fir, and cedar are melting away before the stroke of the ax and the whir of the saw.

G. D. LITTOOY'S APIARY.

At Tacoma we strike tide water again which is navigable for large steamers. The city is pleasantly located, as nearly as I could see through the fog, at the head of one of the many arms or bays that branch out from Puget Sound. Owing to the lay of the land, the streets which run parallel to the bay are in terraces one above the other.

We find here about 50,000 people, and there seemed to be plenty of water for all intents and purposes. The streets were wet and slippery, the wooden sidewalks were being repaired in many places, and, after a few hazardous plunges in the darkness in the early evening, I found a very pleasant abiding-place.

I knew there were several bee-keepers in Tacoma, for I had previously corresponded, and had some substantial dealings with them. One of these, Mr. G. D. Littooy, had purchased our Oro Fino wax; and as I had warned him from Portland that I would in due time drop in upon him I knew I should see at least one live bee-keeper, even if it did rain. The morning after arrival I set out to find the gentleman. I had an idea he was a free and easy bachelor; and when I found the house, and rapped on the door a few times, and there was no response, I felt a confirmation of my idea, and pictured to myself the rooms within in more or less confusion — the bed just as he had tumbled out of it in the morning, stove rusty, with a greasy skillet still on it; a bare table with dirty dishes on it; the floor more or less littered with dirt; cobwebs swinging unmolested from the ceiling; the curtains, if there were any, all awry. My meditations were broken by a sound of life at the rear of the house, and, stepping that way, I found an active-appearing, medium-sized young man splitting wood. This was Mr. Littooy; and as soon as I saw him I had some misgivings about his being a bachelor, for he was more neatly dressed, though in his shirt-sleeves, than the average every-day man. He soon led the way into the house, and, sure enough, the neat man had a fitting companion and two little cherubs of children, one of them a babe in arms. I must confess that the rooms had a bright and cheerful air, and a sort of halo that is never found in a bachelor's quarters—a sort of interior polish. Of course, the babies made some confusion; but it was an animated confusion. There was a childish glee, laughter, sunshine, a "well-spring of pleasure," and Mr. Littooy has a happy home.

The bee-fever was imparted to Mr. Littooy by an aged Baptist minister, the Rev. Mr. Price. From him he purchased his first swarm at a good round price, and Mr. Price and round price figured together on several other colonies and hives.

Just as soon as the bee-fever gets to raging violently with an intelligent victim, the next proceeding is to try to illuminate the mind with bee-literature, and our new bee-man sent for circulars, papers, and books. In the first glamor of his experience he talked bees and bee hives in season and out of season; he sang in the church choir, but the music had the sound of swarming bees; the sermon went in at one ear, and out at the other; there was indeed a "bee in his bonnet."

He soon knew much more about bees than his instructor, and found that he could get bees and hives much cheaper of other parties. The preacher saw the progress his pupil had made, and also found that he could enter the field as a competitor, and said, with some regret, that he had given his pupil a club with which to knock him down.

Mr. Littooy has become very expert in the manipulation of the Heddon hive. He prefers this hive, even if it costs more than others. Although he uses it, there are not many bee-men who follow his example. The Hoffman hive and frame take the lead. Cedar takes the lead here in hive-making, or at least in Mr. L.'s apiary, and it makes a verv nice light hive. It is needless to say that Mr. L. and I were in entire accord respecting hives. Mr. Littooy has about 75 colonies of bees. A portion of them are in an out-apiary some 19 miles from Tacoma, and the rest are at his home, where they are nicely protected from sun and rain under a shed. The photo shows them up in good style; the person in the foreground is the enthusiastic owner, and, having recently made a good sale of honey, he has his hand in his pocket jingling the shekels.

Mr. Littooy has an excellent tailoring business, and he does not allow his bee business to interfere with it to a great extent. If he has not time to extract the honey he storifies until he has the opportunity.

The sources of honey here are willows, fruit, and maple in the early spring. Oregon maple is something like our eastern soft maple, and sometimes yields quite an amount of dark and strong-flavored honey. The main yield, and the best in quality, is from white clover. The great willow-herb, of which we have heard so much in Michigan, also has a plentiful footing here; but, I understand, not as yet enough to make much difference in the honey crop. For a good yield of honey from any source the conditions must be right, and mostly in respect to humidity. When the conditions are right, Mr. Littooy has secured 125 lbs. of comb honey to a single colony.

The greatest danger to an apiary here is spring-dwindling. A few hours of bright sun and then a cool shower soon depletes the hive of its working force. The climate, though, is quite mild, and the bees often gather pollen in February.

Mr. Littooy sells all of his honey in the home market, and, like all bee-keepers who have a good trade at a fair price, he is disturbed by outsiders who put the price down; and when it is once depressed it is a hard matter to get it back to its former rate.

Mr. Littooy is an expert wheelman, and we made arrangements to go out the next day and view the surrounding country; but the clouds have a careless way of shaking out water at the most inopportune moments, and, as the Oregon Dutchman expressed it, the morning "vas too vet." It also has a habit of holding up for a time that it may take a better hold later; and people who are well enough acquainted with this trait of Jupiter Pluvius do quite a little business between showers; so when one of these periods arrived in the afternoon, Mr. L. and I started out on our wheels. He led off at a good strong pace toward the Indian reservation, some three miles distant. Mr. L.'s patron, the Rev. Mr. Price, lived here on a little square of wild land, and his little cabin was among the stumps and underbrush. He is now 83 years of age, has lived in this portion of the country several years, and claims to be the pioneer bee-keeper in this portion of Washington. When he first came here bees could not get enough honey to sustain them; there was too much forest, and no honey-producing flowers; but the more it became settled, the better became the honey pasturage; and as these fertile hills and valleys come under cultivation, bee-keeping will become more and more profitable.

It is a remarkable fact that some people can handle bees, talk bees and bee-fixtures, even write interesting articles upon them, and never get down to real practical profitable work with them. Furthermore, as the years storify on the best of bee-keepers they become more and more conservative, and, after the age of 60 or 65, rarely adopt new methods and fixtures; in fact, they become back numbers, etc. Mr. Price feels himself in this class, and gives Mr. Littooy the credit of having a better knowledge of bees than he ever had. The reverend gentleman boasted at one time the possession of 100 colonies of bees; but I believe his dealings were more in the sale of colonies and fixtures than in the production of honey. There was an evident neglect of the small apiary of forty colonies, and an octogenarian can well be excused from much active work in the apiary. His attention is now devoted to the founding of an apostolic asylum, as he terms it. His cabin is the nucleus, and he has with him two aged impecunious bachelors; the three are the only inmates, and it is a forlorn-looking institution, fully in keeping with the forlorn apiary in the rear.

LONGEST BICYCLE-BRIDGE IN THE WORLD.

Such are the characters we meet while upon our travels; and some there are who might ridicule the outfit, and use it to cast discredit upon the ministerial calling; but the bent form, the careful walk, steadied with a stout cane, the whitening locks, the dimmed eyes and dull hearing lead us to pity and venerate the aged man.

On our return to the city Mr. L. coached me off into another direction, and over one of those nice wheel-roads for which this humid country is noted. These wheel-paths are very convenient near a city, and, being nicely graveled, and used exclusively for wheels, they are always in good order. One of these paths led us over a bridge 600 feet in length, and of considerable height, for it spanned a deep gulch. This is exclusively a wheel-bridge, and shows the enterprise and enthusiasm of the Tacoma wheel fraternity. Mr. Littooy assured me that this is the longest wheel-bridge in the world, and I shall believe him until some one contradicts it. He insisted upon honoring me with a position on it while he snapped the camera at me, and I herewith present the result.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE

PREVENTING AFTER-SWARMS.

Question.—Will you please tell us in GLEANINGS something about after-swarms? If the nice weather of the past two weeks keeps up, swarming will soon be upon us. I am always pleased with the first (or prime) swarm; but the after-swarming is often so long-drawn-out that it becomes a nuisance; yet so far such swarms are something that I have been unable to dispense with.

Answer.—There have been various methods given for the prevention of after-swarms, such as removing the old colony to a new stand as soon as the swarm has left it; setting the hive containing the new swarm on the stand it previously occupied; cutting all of the queen-cells but one on the sixth day after swarming, and hiving the after-swarm in a box on the top of the old hive till the next morning after they come out, when they are to be shaken out of the box in front of the old hive, and allowed to run in so that the young queens will, all but one, be destroyed. All of the above plans have their various advocates, who think them superior to any thing else; and in the hands of experienced bee-keepers there is no question but that they will work quite well. But I should feel that I was remiss in my duty did I not tell the questioner of two other plans which I have used for nearly a score of years with good success at all times, and use them in accordance with what I wish to do with the old colony of bees. Where I wish to remove the old hive to a new stand, while the swarm is in the air, hiving the new swarm on the old stand, I proceed as follows:

As soon as a swarm is seen issuing from any hive, I go to the shop, or to some place in the yard where I get a box or hive, which has previously been prepared, having the desired number of frames (I prefer frames filled with comb foundation for this, or, better still, frames filled with empty combs) in it, taking it to the hive from which the swarm came, when the frames of comb are set out of the box near the hive. I now open the hive and take out the frames of brood, putting them in the box. If the combs of brood seem to be well covered with bees, and the weather is warm, I shake a part of the bees off in front of the hive, before putting the combs in the box. If few bees, or cool weather, I put all in the box, setting the box a rod or two from the hive in the shade, as soon as all the frames of brood and bees on them are in the box. I now put the frames of comb which were taken from the box into the hive, and re-arrange it, by which time the swarm will return, if the queen has a clipped wing, as all queens should have where natural swarming is practiced. If the queen is not so clipped, then the swarm is to be hived in this prepared hive on the old stand, the same as any swarm is hived.

I next put the combs of brood and bees, which are in the box, in a hive where I wish a colony to stand, and adjust the entrance to suit their wants, when they are left till the next morning. By this time nearly all the old or field bees have gone back to the old location, so that the young bees which remain are ready to accept any thing in the shape of a queen. I now go to my queen-nursery, in which I always have virgin queens at this season of the year, and select such a one as I wish them to have, and place her in a wire-cloth cage and take her to this hive. Upon opening the hive I take out one of the central combs, holding the same up before me. As the bees are all young, they will at once take to filling themselves with honey; and while they are so doing I let the queen run on the comb where there are a few cells of honey not occupied with other bees eating out of them, when the queen will commence to fill herself also, the same as she sees the others doing, I holding the cage over her till she begins to feed. The frame is now lowered down into the hive, and the hive closed. In this way the queen and bees appear natural, and I have yet to lose the first queen put in under such circumstances. As the colony now finds that it has a queen, the bees proceed at once to destroy all of the queen-cells, so that no after-swarms ever issue—at least an experience covering nearly a score of years says that none do.

The other plan I use is equally successful with the above, but is used only where I wish to treat swarms the way they are treated by some, by hiving them on a new stand, in which case I proceed as follows: As soon as the swarm is hived I go to the old hive from which it came, and mark on it with a pencil, "Sw'd, 6-15," which tells me at a glance that a swarm came from that hive June 15, should that be the date on which the swarm issued, and the one which was marked on the hive. If it should be another day the date is different; but the plan is the same as suited to any day on which a swarm is cast. On the evening of the eighth day from the date on the hive I listen a moment at the side of the old hive; and if swarming has been done "according to rule" I hear a young queen piping, when I know that a queen has hatched, and an after-swarm will be the result if it is not stopped. If no piping is heard I do not listen again till the evening of the thirteenth day; for the next rule is, that the colony swarmed upon an egg or small larva being in the queen-cell, which allows the queen to hatch from the twelfth to the sixteenth day after the prime swarm came. If no piping is heard by the evening of the 17th day no swarm need be expected. When it is heard, which it will be, in nine cases out of ten, on the eighth day, I go early the next morning and take every frame out of the hive, shaking the bees off each (in front of the entrance) as I take them out and return them again, so I shall be sure and not miss a queen-cell, but cut all off, for we know that there is a queen hatched from the piping which we have heard.

Once in a great while the bees will take a notion to go with the queen when she goes out to be fertilized; but such a happening is of rare occurrence, and has nothing to do with what is known as after-swarming.

The above is a sure plan of accomplishing what we desire to, under all circumstances which may arise where the old colony is left on the old stand. My experience tells me that in the above two plans we have something we can "tie to," as the expression goes.

HEADS OF GRAIN FROM DIFFERENT FIELDS

A BUNCH OF QUESTIONS.

I have wintered bees successfully in single-walled hives for the last eight years by bunching them together and packing them in chaff. This winter we have lost half of our bees by dysentery.

1. If the bees had been kept in the cellar under proper conditions, would the loss have been greater or less?

2. If the bees had been packed in chaff 12 inches thick all around, instead of four or six inches, would the loss have been the same?

3. Why should one stand of bees die with the dysentery when others having the same protection come through all right?

Petersburg, Neb., Apr. 11. A. L.

[1. Probably less. Cellar-wintered bees last winter fared better, as a rule, than those outdoors, but no better than those properly protected in double-walled hives.

2. There probably would not have been very much difference.

3. This is a question that we can scarcely answer. There must have been a difference in the stores or else in the bees. Some colonies, like human beings, are more nervous than others; and possibly the cold spells had a tendency to disturb the one colony more than the other, with the result that, in their efforts to keep warm, they made themselves less comfortable, and consequently subject to disease. A human being who worries or frets is always more liable to disorders than one who knows how to go on in the even tenor of his way.—ED.]

PREVENTING INCREASE.

In reading GLEANINGS for April 15 I see that I failed to explain sufficiently the method of preventing increase that I described. The traps are to be put on all hives previously to swarming. But no queen is to be removed until swarming takes place, and the queen found in the trap. Then she must be taken away, and the traps replaced by an entrance-guard, or arranged so as to permit the young queens to go back into the brood-nest. This is to have, as soon as possible, a "settlement" among the virgin queens, and secure the strongest one for the future sovereign. Leaving the trap, *as a trap*, would finally secure alive only the last emerged, and probably not the best; besides, the first queens caught in the traps would not be able to go back and destroy the remaining cells, while the swarm is out; so the "settlement" would be unnecessarily delayed for perhaps several days.

Knoxville, Tenn. ADRIAN GETAZ.

THE PORTER BEE-ESCAPES — HOW TO USE THEM.

When I undertake to clear my supers of bees by the use of the ordinary escapes I surely feel much like a beginner; for after waiting many hours I seldom find half of the bees have taken their departure. Will you please teach me how to clear the combs without shaking and brushing?

Please let me correct Bro. Gifford's mistake on page 229, which sends out the impression that we had a disastrous freeze. All tropical trees are not killed as far south as Palm Beach, for my place is two miles north of there and I have a large assortment of tropical trees, including the coffee, sour sap, mango, mangosteen, avocado peas, rose apples, avocado pears, banana, pineapples, etc., and I can assure you that not one tree or plant was killed. Even the coffee-berries and the cocoanuts remain on the trees unhurt, and all fruits are coming out very thickly in bloom. In fact, the visitor finds very little damage done in the Lake Worth country, and I have taken in over $100 cash from two pomelo-trees since the "freeze." The hum of the bees in a single tree is now as loud as the flight of a swarm.

M. E. SPENCER.

Lake Worth, Fla., Mar. 25.

[You did not give the escapes long enough time to do the work, I suspect. It is usually the practice to put them on the night before; and the next morning, or along in the afternoon, the super should be fairly clear of bees. It is very seldom that *every* bee will be out of the super; but if there are a dozen or so left they will usually take wing as soon as the cover is raised—or at least a whiff or two of smoke will dislodge them.—ED.]

EMPTY COMBS ABOVE OR UNDER THE HIVE; IMPORTANCE OF FEEDING.

If I am not mistaken, Dr. Miller and others, including the editor, recommend putting a hive containing empty combs *under* the hive containing the bees, to prevent swarming. My limited experience is directly opposite. When my bees get the *upper* story filled with brood and honey, they are apt to swarm, regardless of room below, either with empty combs or empty frames. I always work on the tiering-up plan of two or more stories; and as long as I can keep the queen at work in the lower story with empty comb above for the bees to store honey in, I am not troubled with swarms.

During the past dry year, bee-keepers who did not feed lost heavily. I lost all that I did not feed; and in order to preserve the combs I tiered them up five stories high. Three of these colonies have swarmed this month, with three stories of empty combs below, and the two upper filled with brood and honey. My bees always winter in the top stories; and even during the extracting season I can keep the queens below only by using the zinc queen-excluders. I use nine frames to each story, of about the standard L. capacity, being a little shorter and deeper. My best queens will keep two stories well filled with brood during the best of the season, and keep about three combs full in winter. DELOS WOOD.

Santa Barbara, Cal., April 24.

[I think you must have misunderstood me, friend W. I did not intend to recommend putting empty combs under, for that has never been my practice, although I may have partially agreed with the doctor that such a plan might be better at times.—ED.]

DARK HONEY FOR POPCORN CRISPS; BEE-KEEPING IN HONOLULU; OVERSTOCKING.

Your idea is good to dispose of our dark honey by having it worked up into popcorn crisps, caramels, etc., and I wish you would publish the recipes in your paper, especially for popcorn crisps.

Last year's honey crop was small here, owing mainly to the Japanese, who have gone into the bee business, and they seem not to have the least idea that it can be overdone by having too many colonies in one place. They form companies, and have at one place as many as 900 hives. Here where I am are over 2000 colonies within a radius of less than three miles My last year's average per hive was only 50 lbs., while the year before it was 150.

Our surplus honey we get from algeroba-trees, not indigenous to these islands. They are only as yet growing to any extent on the Honolulu side of the island. C. F. WOLFE.

Honolulu, S. I., March 9.

[Our honey recipes are all very fully given in our honey-leaflet.

My, oh my! it appears you have overstocking to a greater extent than we have anywhere in this country. Can not something be done to educate those Japanese in regard to the folly of overstocking?—ED.]

THOSE SUPER SPRINGS—A SUGGESTION.

Your wire spring in super is one of the best improvements you have given us in a good while, and I hope you will excuse me for suggesting that you can greatly improve it by making the springs ¼ in. wide, and of a thickness sufficient to give the necessary pressure. It would not wabble at all, as the round wire wants to, and one would not have to be so precise in driving it, and it would fit better on the cleats. J. E. WILLIAMS.

Sparks, Ga., Feb. 23.

[The first springs we made were flat; but we found they were going to be considerably more expensive to make, both because the labor of making and the material would cost more. Then, too, propolis will make more trouble with such a spring than the wire springs we use.—ED.]

BLEACHING TRAVEL-STAINED COMB HONEY; ONE WAY OF DOING IT.

In GLEANINGS, April 15, you wished to know if any one else had a plan for bleaching travel-stained honey. I have bleached it by setting it in a window in the sun—not too close to the window, or it will melt the comb. It is a rather slow job unless you have a large window; but it will bleach it nice and white.

W. J. AUSTIN.

Chittenango, N. Y., April 24.

HOW TO MANAGE A HORSE AMONG CROSS BEES.

I notice in GLEANINGS, that a man lost a horse by the bees stinging it to death. This may be old to some who work their horses near the bees; but if they bother, put a large blanket over the horse's head, and then you can lead it away in safety.

JOHN S. LUDDEN.

Cranesville, N. Y., March 23.

HOW TO REPAIR A PUNCTURED SINGLE-TUBE TIRE.

Thread a large darning-needle with rubber thread; inflate somewhat; back your threaded needle into the cement-tube, then butt the end into the puncture deep; pull out the needle slowly, often leaving four strands cemented together; cut smooth, and use at once if desired. It can hardly be detected, and almost never fails to make a permanent mend.

San Saba, Texas. B. R. RUSSELL.

[I have tried a modification of the plan you describe, and it certainly does work very successfully; but if one follows exactly your directions he will not succeed, I am afraid. The method of repair that I have practiced is this: I break off the end of a darning-needle in such a way as to leave quite a long slot in its end. Over this slot I string half a dozen or a dozen small rubber bands; then draw the bands, all of them, up so they are stretched to two or three times their length. When they are thus drawn I dip the needle-heads, bands, and all, into some rubber cement; then force the head with the bands into the puncture of the tire perhaps an inch or two down. I next let go the bands and slowly draw the needle out alone, leaving the bands in the tire. With a pair of scissors I cut off the connecting ends, and the repair is complete.

This may be a little outside of bee-keeping; but at the same time many bee-keepers go to their out-yards on bicycles, and a little kink of this kind may be worth much.—ED.]

BEGINNERS' QUESTION BOX

BY E. R. ROOT

H. C., Ia.—By "ripe cell" is meant a queen-cell that has a queen in it ready to hatch. The term "ripe cell" is very often used, and it is very expressive.

R. A., Cal.—Brood or queen cells should be kept at a temperature between 98 and 101 or 102. The nearer you can keep it to blood temperature, 98°, the better.

A. W. H., Ohio.—We can scarcely understand how you could have had such losses as you had. Apiaries should be protected on at least three sides by woods, buildings, thick-growing shrubbery, or a tight board fence.

S. D. G., Neb.—The two colonies you speak of as having died, lack of bee-bread would not have any thing to do with the matter. In fact, it is generally considered that, for successful wintering, there should be no pollen or bee-bread in the combs.

J. M. C., Ala.—If your bees have bee-paralysis, you have a very difficult disease to cope with. I would advise that you separate the affected colonies, as you suggest. In the mean time keep us posted, as we are interested to know just how these cases turn out.

C. P. B., Ore.—The condition you find in front of your hives (dead bees) shows that these are simply superannuated bees that have died of old age. We usually find them in front of entrances of all hives in spring, about the time bees are cleaning house, preparatory to the work of the season.

R. M., Wash.—If the foundation you speak of came from a responsible maker I should say it is all right. The white deposit you refer to may be due to the fact that too much soap as a lubricant was used to get foundation off the rolls. This soap dries, and leaves a white deposit. Your foundation is all right, probably.

E. G. M., Ark.—All combs that have been subjected to a freezing temperature, and that are afterward stored in a bee and moth proof room, will be perfectly immune from the depredations of moths until wanted. If you have not a tight room, and have extra hives, these can be made bee-tight, and made to stand anywhere in the yard. Combs stored in these will be perfectly safe until you require them for swarms or otherwise. Yes, Carniolans do have a tendency to run to yellow, we are told.

G. B. R., Ia.—The only kind of telephone that you can use to give notice of swarming at the house is the acoustic, and is sold by such firms as Perry Mason & Co., of Boston, and Montgomery Ward & Co., of Chicago. The copper wires should be strung so as to run in such a way as to run through the apiary back and forth, being careful to avoid sharp angles. The tighter the wire can be drawn and not break, the better. When swarms issue, bees will tap this wire so often in their flights that it will give immediate warning at the house.

J. R. V. B., Jamaica.—If you have an absolutely non-swarming hive that will stand the test of a hundred years, you have a bonanza. I wish I could share your confidence and enthusiasm. Personally I do not believe that swarming can be absolutely controlled by any device, although I believe it can be very greatly checked under some conditions. I shall be very glad to hear from you further after you have tried it; but I have seen so many attempts to control swarming by mechanical devices, that failed, and failed absolutely, that my faith is very weak.

G. W. H., N. Y.—If you intend to make a large honey-tank you had better make it of galvanized iron; for such has an amount of surface to the honey that is comparatively small. But if you desire only a small tank, say one holding two barrels, I think I would make it of tin; but tin tanks must be watched very closely to prevent rust. They should be painted on the outside, and when left it will do no harm if honey is smeared over the inside, as the latter is an excellent anti-rust, the same making a sort of varnish that keeps the moisture off the metal.

W. C. G., N. M.—The cage you send is of the right principle, but it is too expensive. You speak of the fact that, with a regular Benton cage, it is necessary to have the wire cloth loose before putting in the queen and bees. This was so formerly; but within the past two or three years the cage has been modified as you will see by the sample we send you by to-day's mail. You will notice a cork in one end —or in both ends for that matter. In one end the queen and bees are inserted; and when the cage is full, the cork is pushed in and the cage and bees are ready. This arrangement is very much cheaper, and, to my notion, somewhat handier.

W. E. P., Neb.—Our A B C of Bee Culture was written with special reference to beginners. While it is in a sense a dictionary or cyclopedia, we recommend that each beginner take up the different subjects according to the season of the year that he is doing the reading. For instance, he receives the book in winter, let him read up on wintering; if in the spring, he should read up on dysentery, spring dwindling, feeding, and robbing; and then, later on, comb and extracted honey, and swarming. But perhaps you desire something that you can digest in a shorter space of time. With that end in view we would refer you to the matter on pages 32, 33, and 34 of our catalog we are mailing you.

EDITORIAL
BY
E. R. ROOT

THE heaviest losses seem to have been in the Northwest. In New York the bees have wintered quite well.

THOSE of you who have not done so will do well to try, this coming season, shallow extracting-supers to start the bees up above; then after the bees have got nicely going, substitute the super for comb honey.

WE are rearing queens *a la* Doolittle — yes, going one step further. We are raising cells in the lower story of the hive with a laying queen. How this is done will be explained a little later as soon as we can determine whether the method is an entire success.

THIS has proved to be an almost ideal spring for bees. The winter in most localities turned abruptly into beautiful balmy weather; and had it not done so just at the time it did, the loss of bees throughout the country would have been enormous.

THERE seems to be a great scarcity of bees and queens this year. We have difficulty in supplying the demand at the Home of the Honey-bees, notwithstanding that we have orders, and have had, with all the best breeders in the country. Their own trade seems to take up all they can supply themselves. No doubt, ere another issue is out, there will be queens in abundance.

THERE seems to be much interest manifested in that Dadant-Langstroth (or what might be called jumbo) hive proposed by A. N. Draper, in our last issue, and spoken of again in this number. So much has been said in favor of these hives that it seems to me time that a few of us should be trying them on a small scale. It would be folly for any one to adopt them largely until he *knows* whether his locality is adapted to them.

BEE-PARALYSIS.

WE have just heard from one of our correspondents who has bee-paralysis in his apiary, the same having started from a queen that he says he purchased from a prominent queen-breeder. As our friend lives in Alabama, the disease is making a good deal of trouble. He has not told us who the queen-breeder is. Two years ago all the leading queen-breeders of the country, with perhaps one or two exceptions, agreed to destroy any colony they found in their apiaries, affected with bee-paralysis. Some objected to such a radical procedure; but I firmly believe it is the only safe thing to do. Foul brood in a queen-rearing apiary, if nothing but queens were sold, would probably do no harm; but bee-paralysis might and probably would do considerable damage in the apiaries of the South.

LAWN-MOWERS, AND HOW TO MAKE THEM CUT.

AT this time of the year there is a good deal of lawn-mowing to be done around the hives, and the query arises, How many know how to set or adjust the knives so as to make them cut? In general I may say the cutter-bars should be adjusted so that they will scrape or shear the whole length. You will find screws or adjusting-bolts whereby the bar can be raised or lowered. Even if the knives do rub a little hard, better so than to have them touch too lightly.

Another thing, do not be afraid to use oil frequently. I find it an advantage to pour in a little oil on the bearings that hold the revolving blades, at least every half-hour while working. Indeed, I have thought that a machine runs easier when oiled every fifteen minutes. Oil is cheap, but man power is expensive.

NO INSURANCE—A BEE-KEEPER'S LOSS.

THE following letter from one of our contributors, and one who was proposing to write us a series of articles, is at hand:

> I must write you to-day telling you of my misfortune, as I know I shall have your sympathy and that of the whole bee-keeping fraternity. Day before yesterday my house burned down with most of the contents. My loss is about $1500. No insurance. I am ruined. I have nothing to build with, and nothing with which to purchase furniture. My little girl's clothing all burned except one dress, which she had on. My family consists of my wife, a boy, and girl. My wife is an invalid. I am nearly fifty years of age, and not in good health, so you will see that I am in a bad condition. I always try to see some good in all things, but it is difficult to find a bright side in this case. A. J. WRIGHT.
>
> Bradford, N. Y., Apr. 29.

This is indeed serious, and I am wondering why a bright, intelligent man of forethought like our friend Wright did not carry insurance. It carries its own lesson, and a terrible one it is. We would enter an appeal for aid but for the fact that there are so many calls of a similar nature that it would be hardly right to call upon our readers for assistance. There is a silver lining to every dark cloud, and I believe friend Wright will see one, even if it does not appear just yet. Some of the greatest calamities end in the greatest blessings.

WAX FROM FOUL-BROODY COMBS NOT SAFE.

ONE of our patrons recently sent us a lot of wax that he had rendered out from a lot of foul-broody combs, and he was honest enough to tell us of the fact at the time of making the shipment. As soon as I knew of it I told our freight-man to be on the lookout for it, and the foreman of the wax-room to be prepared to receive it and give it special treatment. While I believe there would not be much danger, I feel sure it is wise to err on the safe side. We have, accordingly, taken this wax and brought it to the boiling-point, or as nearly so as we could, in a barrel by itself, using a jet of steam. After it was boiled for an hour or so, and was allowed to stand, the next day it was treated as before, and still again it was heated, after which it will be mingled with the general supply, and then heated once more. This, of course, will render it entirely safe. The recent discussion regarding the power of the spores of foul brood to resist prolonged extremes of heat goes to show that even three hours of continuous boiling might not kill them.

I can not help thinking that it is very unwise, certainly unsafe, for any one to render up old foul-broody combs. Wax with a steam-jet can not be heated much beyond 200° F., and never more than 212° if surrounded by a vat of boiling water; and even if one can thoroughly sterilize his wax, he runs a tremendous risk while he is going through the process of sterilization.

We desire to say to our friends and patrons that we prefer not to receive wax from foul-broody combs; and if any one has ever sent us wax from such combs, without telling us what this wax was rendered from in the first place, there would be a *possible* danger of giving some innocent user of foundation foul brood. I do not mean to raise any scare, but I do not think we can be any too careful when dealing with this insidious enemy.

SPRAYING FRUIT-TREES WHILE THEY ARE IN FULL BLOOM.

It would seem that it is not altogether the whisky and rum power that is repealing good and wise laws almost as fast as they are made. Read the following:

> Inclosed please find a clipping from my county paper, stating that a law has been passed in this State, legalizing the spraying of fruit-trees while in blossom. Please make a note of the above law in next issue of GLEANINGS. It is perhaps, needless for me to say that I am not in favor of said law. I am very sorry indeed that the Empire State, having as a motto "Excelsior," has made such a sorry mess of it.
>
> Ransomville, N. Y., Apr. 27. C. E. PALMER.

> Another dispatch from Assemblyman Darrison says: "The bill to permit spraying of fruit-trees when in blossom passed the Assembly this morning."
>
> This repeals the old law against spraying while fruit-trees are in blossom. The old law was advocated by those who claimed that spraying while in blossom killed the honey-bees, and who also urged the claim that certain kinds of blossoms could not be fertilized except by the assistance of bees traveling from one blossom to another. The advocates of spraying in blossom time have carried their point in the Assembly.

This whole shameful piece of business comes either from ignorance or misconception, or else it is spite work. Years ago there was something of a feeling between fruit-growers and bee-keepers; but not only scientific men but practical gardeners and fruit-growers came forward with such testimony that for some time back it has been generally recognized that honey-producers and fruit-growers actually *need each other;* and when our experiment stations throughout the land declared there was nothing gained whatever by spraying fruit-trees at a time when it might kill the bees, we supposed everybody understood it, and many of the States passed laws to prevent people who were contrary, and who were vicious enough to poison the bees purposely, by using their spraying apparatus while the bees were working on the blossoms. I notice by the May number of *Vicks Magazine* that Prof. Slingerland, who is, perhaps, our best authority, decides there is absolutely nothing to be gained by spraying trees while they are in full bloom. See the following:

> Is there a law forbidding spraying apple-trees when in full bloom?
>
> Vice-pres. Willard.—There is; you have no business to kill your neighbor's honey-bees.
>
> Prof. Slingerland.—Last year I said I did not think there was need of a law in this State to prevent men from spraying trees in bloom. I now think the bee-men are right. There is no earthly reason why you can not kill as many fungous and insect enemies just before and just after the tree blooms, as when the trees are in blossom, because the enemies are out before the blossoms open. You can not get the spray in the blossoms before the petals fall. There is no question about the killing of the bees. Chemists have analyzed them. They carry the poison home and kill the brood.—*From Vicks Magazine for May.*

THE REPEAL NIPPED IN THE BUD BY SENATOR RAINES.

One of the clippings given above says the bill passed the Assembly, and this led me to believe that perhaps it had not gone through the Senate yet. Knowing that W. F. Marks, President of the New York State Association of Bee-keepers' Societies, the man who secured the passage of this excellent anti spraying measure, would know the real facts in the case, I immediately wrote him, asking for particulars. This is his reply:

> *Mr. E. R. Root:*—Replying to your favor of the 4th inst., I will say an *attempt* was made to repeal the law "to prevent the application of poison to fruit-trees while in bloom," but *it failed.* The opposition stole a march on us, and got practically through the Assembly before we knew it; but when their bill reached the Senate, thanks to Senator Raines, who was watching for it, it was *promptly killed.*
>
> It stands the New York bee-keepers, and friends of the law, in hand to be on the *alert,* and no time should be lost in strengthening our position and in disarming the opposition. The attempt is liable to be repeated at any future session; and the way to defeat it is to be ever ready to meet the issue. It is the best law on the statutes—short, but every word is to the point, and, backed by public sentiment, it is the only thing that will prevent the practical extermination of the honey-bee in large portions of this State.
>
> In order to create a sentiment against spraying fruit-trees while in blossom, and in favor of the law, we are circulating a pamphlet (copy inclosed) consisting of *abstracts* from various articles on cross-fertilization, and extracts from bulletins on spraying. The matter is in a condensed but convenient form, and is worth preserving, as many of the bulletins quoted are "out of print." As many farmers might think the matter was prejudiced if they knew some of the articles were written for the bee-periodicals, it was thought best to omit giving credit for the articles—an omission which, in view of the above-mentioned fact, will, we trust, be forgiven.
>
> The principal hostility to the law appears to be in Niagara, Orleans, and Genesee Counties. Bee-keepers in those counties should *organize at once.* Please urge them to do so; and urge every bee keeper in New York to do his best in upholding the law, and in creating a sentiment in its favor. The intelligent fruit-growers are heartily in accord with the bee-keepers. W. F. MARKS.
>
> Chapinville, N. Y., May 8.

Senator Raines, if I mistake not, is the one who introduced the celebrated Raines anti-liquor measure. This law, I believe, has been the means of closing up hundreds of saloons, and making it very unhealthy for a lot more that are still in existence. It is no little pleasure to us to feel that we have so distinguished a champion on our side, both in morals and in the cause of the little bee.

As Mr. Marks well says, the bee-keepers of New York need to be on the alert, for they were nearly caught napping. Nothing but consummate ignorance and prejudice would be at the bottom of the repeal of so good a law.

OUR HOMES,

BY A. I. ROOT.

And he said unto them in parables, How can Satan cast out Satan?—Mark 3:23.

In olden time the Savior said, most emphatically, that Satan was not the proper person to uphold law and to put down the works of the Devil. In connection with the words of our text, "How can Satan cast out Satan?" Jesus says, "And if Satan rise up against himself, and be divided, he can not stand, but hath an end." I believe all the world has assented to this through the ages that are past; but in recent times, even within the past few years, there seems to be a class in community who evidently think it is possible for Satan to cast out Satan. Let us go back a little. There seems to be a strange feature in humanity that makes it love to view and dwell on suffering. When a chicken's head is to be taken off, the children will all run to see it unless mamma or possibly papa himself says no. Even though these things seem to be necessary, it is not well for children to be around while they are being done. Children of an older growth all run and push through the crowd to get a glimpse of somebody who has been injured in an accident. A good many times the police have hard work to keep the crowd away so as to give a woman air when she has fainted on a hot day. Why do they all run and elbow each other, and push and jostle just because somebody is suffering? Is it sympathy and love for our fellow-man? I fear it is not. Of late there seems to be a great mania to see a suicide, or, if we can not see it, to read all the disgusting details in the papers. I have often thought there would be fewer suicides if people would just bury the body decently and say as little about it as possible—that is, if such a thing could be done. I believe teachers, doctors, ministers, and humanitarians, agree with me. If a man is to be hanged, people congregate from miles around—that is, they did so when hanging was public. Our authorities, however, decided long ago that such punishment should be made in private; and then it turned out that they could not make it private. A crowd or the rabble, if you choose, would tear down the fence, or demand, in spite of constable or police, that they be permitted to look on and witness the dying man's agonies. I well remember in our town of Medina when a man was hanged for the murder of a whole family. I think they made a pretense of putting up a fence around the gallows. But the fence disappeared the night before; and, if I am right, the men who put it up calculated that such would be the case, so they did not waste much on nails or lumber. Perhaps I might as well say that I myself was a witness of the hanging, but I did not help tear the fence down. This happened before I was a Christian.

Now, I do not mean to say that I am entirely free from the mania that seems to possess the general run of people in this respect, for I would probably go now with the crowd if my conscience did not admonish me it was wrong. I hope my readers will never imagine that I am temperate and peaceable because I have no inclinations to be sinful. God knows, if nobody else does, that it costs *me many* a struggle to do right.

Now, why do people wish to see a man hanged? Why did I shut my store and leave my business, and go off with the crowd to see a man hanged, whom I knew so well that I might almost call him a neighbor? In olden time the American Indians used to have a "big picnic" when they captured a prisoner and put him to death. Hanging was too tame and too speedy. There was not *torture* enough about this method; so they burned him at the stake with a slow fire. Away back through the early ages it used to be a fashion to give prisoners to wild beasts, and great crowds gathered to see the victims torn limb from limb. Yes, even the nobles and the royal family themselves, with their fine ladies, came out to witness such exhibitions of cruelty. Later on they had bull-fights; and, even though a man by his skill and great muscular strength might come out victorious through many a conflict, the bloodthirsty populace must keep him at it until they found a dumb brute that *could* gore him to death. I suppose such a death was considered a full reward for all his bravery and intrepidity. Why, we have have had quite a little difficulty, *even of late*, in enforcing laws in the United States against bull-fights; and finally somebody thought it would be better to rule out the dumb beasts entirely and let two *men* fight together. I wish I could say that our United States of America had shut down on prize-fighting entirely. May God hasten the time when these things will be remembered as only relics of former ages. The motto on our coins still reads, "In God we trust." Oh that it were *true* we were trusting in God to such an extent that our people would refuse to *go* to places of public resort simply to see one man torture another!

There is *one* thing that modern times have not as yet revived (in the way of horrors that make one's blood run cold), and that is *cannibalism*. When we speak of a race of people or of a locality where they are cannibals, that one word seems to express in itself the most fearful depths to which humanity can sink. But I have actually been afraid, if these things go on, that sooner or later cannibalism *would* be revived. At a recent prize-fight, we are told, when one of the men by brute strength began to wear out his opponent, the crowd, who were hungering and thirsting after——what? Righteousness? no, they were hungering and thirsting for *bloodshed;* they wanted to see the man to whom God had given the greater endurance murder his weaker opponent. They yelled to the victor, "Kill him! kill him!" Did they want the man killed because he was guilty of some crime? No, no! They had no spite against him at all. Their feelings had simply become wrought up to a pitch where they wanted to see *somebody* die. We are told the American Indians used to be crazed at the sight of blood. You have all heard the story, perhaps, of a great peace-meeting between two warlike tribes. They had shaken hands, "buried the hatchet," and then they had a big dinner. Two children quarreled over a gaudily painted grasshopper. Then the children's *mothers* quarreled, and then the *fathers* quarreled. Then the *neighbors* took sides. Pretty soon blood was shed, and before the sun went down two great tribes, the greater part of them, lay dead on the battle-field. They were *crazed* at the sight of blood. The Great Spirit smiled on them in the morning as they planned to bury the hatchet and to be brotherly; but, oh dear! what an *end* of good resolutions! You all know, without my telling you, of this craze that seems to have a place, more or less, in almost every human heart. If a family is murdered, people must drop their spring work and every thing else, and go for miles to look over and listen to the horrible details of the tragedy. It is like the craze for gambling, the craze for strong drink or other stimulants, the craze for wealth or fame. In modern times, when there are good laws to *restrain* this thirst for bloodshed, people are inventing all sorts of excuses to gratify them; and one of the latest excuses for lynching is the corruption of our officers of law, the slowness of legal proceedings, and the uncertainty, after all, of any punishment for the guilty; therefore *lynch* law has begun to be fashionable; and all at once it transpires that a crowd can be collected in almost any community who are so loyal to the cause of righteousness that they will drop every thing at any minute to rise up and punish transgressors themselves. If some member of community gives evidence of being possessed of the Devil, this element springs forward with an alacrity it has never shown before in any thing else, to punish the criminal and do away with all such devilish work. The Bible tells us the law is a terror to evil-doers. These people have evidently got it into their heads that a better way would be to teach mankind that *mob rule* is a worse terror to evil-doers. I am not defending criminals, mind you, nor am I urging that we shall let such terrible outrages go unpunished as have been committed of late, especially by some of our colored people. I am simply suggesting that the people who hang these criminals, and burn them at the stake, are not moved to this work just because they *love righteousness* and *hate iniquity*. I can not prove it by statistics; but is it not true that the crowd who spend their last dollar to go to a bull-fight or to a prize-fight would do a good deal more than that if there were a chance of seeing a negro put to death by mutilation and slowly burning him at the stake?

On this last occasion (I suppose everybody has heard about it) crowds to the extent of several thousand went many miles to witness the spectacle. I have not the paper now; but if I remember correctly the railroad companies ran excursion trains on purpose to carry people and bring them home again. Now, it is the business of the railroad companies to carry people wherever they want to go, *as a rule;* but I do hope that a national law will soon be enacted forbidding railroad companies to carry mobs, especially where said mob proposes to *defy law*. There has been some feeble attempt made by the courts to stop lynching. I presume people console themselves by thinking that this crime, which it is not even pleasant to talk about in print, will soon be a thing of the past when such terrible punishment so speedily follows. In other words, they seem to have a sort of fond hope that Satan *can*, in these latter days, cast out Satan. It does seem as if every colored man inthe United States must know of the fate that surely awaits him when he lets his low beastly passions run away with him; but, sad to state, the thing is not being stopped. Years ago they used to put a man in prison for debt; and in England they hanged for what we would call very trivial offenses. Did it lessen crime? We are told it did not. Sometimes it seems as if certain people were possessed with a *craze* to commit crime. Please do not think I am laying *all* the blame on our friends in the South. It is not many years since there was a foolish craze among the Puritans of New England to stamp out witchcraft, and they had public exhibitions of the *drowning of witches*. Crowds came to see it, and I presume many good people deluded themselves by thinking that, in so doing, they were showing to the world that *they* loved righteousness and hated iniquity. I have been told that it was my own ancestors who tortured the witches, and that it was my own Congregational Church that had a particular hand in it. If so, I shall have to pray once more that God may help us *all* to beware of the wiles of Satan.

Dear friends, it is hardly likely that what I am writing will be read by any one who had any thing to do with that awful public spectacle that has been pronounced a disgrace to the present age, and a still blacker disgrace on the annals of the history of our American republic. Just at a time when we were trying to persuade the Filipinos that we *love* them, and are conquering them only that we may give them the benefits of modern civilization (?), our country has been guilty of this fearful thing. How can we persuade them that we are a nation of people who love even our enemies, and would be just and fair to *all* persons, regardless of sex or color? If the man who was tortured was the only one who was *unquestionably guilty* it would not be so bad; but we are told that a quiet, inoffensive, law-abiding colored minister was put to death without any good evidence that he was guilty at all. The man, before he was burned at the stake, simply declared that this minister paid him twelve dollars if he would murder a man. The criminal was evidently casting about for something to say or do to help his prospects; and he simply said what many another man in his position might have said. He declared he was innocent of a part of the crime, and that he was hired to do the other part. The colored minister had some sort of trial. But the crazy mob had sense enough left to decide that it had no kind of evidence that would warrant them in putting him to death; and they decided to put him somewhere in safe keeping until he could have some sort of trial. Before morning he was horribly mutilated, and hung up on a tree and riddled with bullets.

Those who have been watching this lynching business as one case after another follows thick and fast, will notice there seems to be a study on the part of those who take the law into their own hands to make each case a little worse than the preceding one. The details are so horrible I dare not put them in print on these pages; but at the end we are told each bloodthirsty one in that crowd of thousands carried away with him some fragment of roast flesh or burned bones of the victim; and I am just told that a white minister of the gospel, who attempted to remonstrate against this reign of mob law, received a piece of the dead man's body as a warning to leave that part of the country; and, not satisfied with this, the inside of his church was completely wrecked. I said these things are not confined to our friends in the South. This lawless element and this craze for scenes of this kind exist everywhere.

In our own State of Ohio, only a short time ago, there was a case of lynching just because the neighbors thought an old man had been cruelly treated by one of his sons; and, if I am correct, none of the perpetrators of the deed have been punished by law. But God's punishment will surely fall upon us by something more terrible than any thing that has happened yet, if we as a people decide to let *lynch law* take the place of judge and jury. We are *all* responsible; and it is with the hope that this little plea of mine may suggest to somebody that Satan can *never* cast out Satan that these words are sent out to you. One of the sheriffs in this recent case tried his best to pacify the crowd, declaring that the culprit should be punished to the fullest extent of the law if the law were allowed to take its course; but they would not listen. This vicious element is looking on. It is watching keenly to see whether those who take the law into their own hands get punished or not; and every case that is dropped, and nothing done, only hastens the time of the calamity to which we are surely tending unless we wake up and declare as a people that *law* and *order*, and not mob law and *disorder*, shall govern our land.

There is only one way known, since the world began, of casting out devils or devilish work; and this nameless crime that seems to belong particularly to the colored man is certainly the work of the Devil if any thing is. The power of Jesus of Nazareth alone can cast out devils; and even the devils themselves seem to assent to this. In Mark 1:24 we read that the unclean spirit said, "Let us alone; what have we to do with thee, thou Jesus of Nazareth? Art thou come to destroy us? I know thee who thou art, the Holy One of God." It is through the gospel of Christ Jesus that the world must conquer all this kind of work.

Law and *gospel* always have gone and always must go *hand in hand*.

HEALTH NOTES

BY A. I. ROOT

ANOTHER SENSATIONAL "SCARE."

I think it was Artemus Ward who once said, "What is the use of knowing so much when so much that you know *ain't so?*" Within the last few days I have seen in three different periodicals statements to the effect that pure water is not wholesome. The first one came from the *National Druggist*. Well, if druggists are making money by selling alcoholic liquors, I do not wonder they are glad to hunt up some German scientist, or somebody else, who cautions people against drinking too much pure water, or water that is "too pure." The argument seems to be that chemically pure or distilled water is too strong a solvent. Suppose we just for a moment grant this; then what water shall we drink? Almost all well waters, and the water from many springs, contain more or less lime, soda, and other mineral salts; but the composition of no one well or spring is like that of any other well or spring. They all contain minerals, and different kinds of minerals—that is, nearly all. Here and there we find springs of soft water coming from sandstone rock, that are almost perfectly pure. If you evaporate some of it in a spoon, little or no residue is left. Water procured direct from the clouds, in a clean tin pan or some other dish, is so much like distilled water that no one could possibly tell the difference by the taste. As both leave no residue whatever on evaporation, both are alike chemically pure. Freshly fallen snow, when melted, affords the same kind of water. Physicians have for ages past recommended cistern water for drinking purposes in preference to any other water easily obtainable; and this thing has been so well tested that it is too late in the day to go back to it. Thousands of people—perhaps I might say millions—have recovered their health by getting their drinking-water from soft-water springs or from well-made cisterns. The only objection to cistern water is that it collects smoke from the roof on which it falls; sometimes vegetable matter from old shingle roofs, and oftentimes lime or other minerals from the cistern in which it is stored. Cistern water is acknowledged to be very much better than the average well water. Well, within a few years past, thousands of people like myself have found distilled water more wholesome and much more favorable to digestion than even good cistern water.

Manufacturers of the various sanitary stills have received testimonials from not only people all over the world, but from the highest medical authority, in favor of distilled water. You know I have discussed this matter at great length; have hunted up springs all over Uncle Sam's domain; have compared the water, and talked with people about different waters. Well, my decision is most emphatically that the best mineral water in the world is that which contains the *fewest minerals*. While staying in Arizona, near Salt River, my stomach so rebelled at the "grain of salt" that nobody else seemed to notice, that I used to travel to the ice-plant in order to get distilled water to drink. In Bermuda I was greatly delighted, as you may remember, to find that everybody in the island drank only rain water. But the roofs of the houses are all whitewashed; and my digestion pretty soon began to rebel against the faint taste of lime in all the drinking-water. Hard well water I have been unable to drink—that is, right along—ever since I was a boy; and although people have laughed at me again and again, I have all my life saved up rain water, or else traveled miles to soft-water springs when I became very thirsty.

I have been using the sanitary still considerably over a year; and the distilled water is like bread and butter (I mean *good* bread and butter); I never tire of it. It never makes a bad taste in my mouth; and it never induces my digestive apparatus to begin to "kick" after I have taken a big drink. Why, the *National Druggist* and the German scientists (I do not care how big the latter, nor how many there are) might just as well tell people in the country that pure air is not wholesome, and advise them to go into the thickly populated cities, and breathe smoke and poisonous gases, together with putrid smells, and call the latter more wholesome. I should not wonder a bit if some of these "big" scientists should tell us next that bathing once a week is found to be unwholesome, and that a man will live longer if he never bathes at all and never washes his clothes. God made the pure air and the pure water, and wholesome food, for the use of man; and the man himself, or some miserable excuse for mankind, who invented the stupid yarn that pure water is not wholesome—the scientist or any other man who tells you that water may be *too pure* to be good—probably would object to a man who always tells the truth, and would persuade you that a man who would deliberately lie a part of the time is a better member of community than a truthful one.

If the soda-fountains in most of our drugstores would furnish a glass of distilled water at the same price as their other drinks, I for one would take the distilled water in preference to any thing that any druggist can conjure up or mix up; and I presume there are thousands like myself. But the distilled water should be furnished for a cent a glass. Every druggist has to keep it for compounding medicines; and pure water certainly ought to be furnished at a moderate price to people who are willing to pay for it.

On page 355 of our last issue, Mr. A. J. Wright suggests that, if God intended people to drink pure water, he would have provided it instead of hard water, such as is so often found in springs and wells. Permit me to ask what kind of water is provided by Nature most abundantly — the pure water that comes down in the form of rain, or the water under the ground, that we have to dig for as a rule? In many countries rain water is almost the only source of drinking-water; and even in the United States a very large portion of the people use rain water for cooking and drinking purposes. Rain water is distilled water from Nature's own apparatus; and nobody would ever think of distilling rain water if it could be taken direct from the clouds, without being contaminated by the smoke and dust that are found even on a slate roof, or the impurities found in the average cistern.* Distilled water is a most powerful solvent, as the chemist or even the manufacturer will tell you; and it will grasp hold of and dissolve a multitude of substances that ordinary water from wells will not. It is this powerful solvent property that makes it so valuable in dissolving and removing impurities that must be taken from the human body day by day, if we would remain in perfect health. Even the patriarch Job regarded snow water, which is the same as rain water, as a perfect cleanser of the hands. Perhaps I should apologize for the amount of space I have taken in this matter; but when men who lay claim to scientific attainments tell us that pure water is not wholesome, it becomes a serious matter.

STILL LATER.

One of our medical-friends has been kind enough to forward me a clipping from *Deutsche Medicinische Wochenschrift*, a German medical journal, to the effect that "distilled water taken into the stomach causes swelling of the gastric epithelium, followed by desquamation and even inflammation. . . The addition of enough chloride of sodium (table salt) to distilled water to produce just a faint saline taste obviates the difficulty. . . The various pure spring and mineral waters, if not too highly charged with mineral contents, are much better for therapeutic use than distilled water, unless salt is added to the latter."

So it seems the whole scare, when summed up, amounts to this: One who drinks distilled water may not get sufficient common salt, unless he salts the water he drinks, or, what amounts to the same thing, takes a little *more* salt with his daily food. For more than a year back I have drank a quart or more of distilled water every day; and while at home, nothing but distilled water. I have not seen any thing yet of "desquamation" nor "inflammation."

THE DANGER AND HARMFULNESS OF PATENT MEDICINES.

It affords me great pleasure to notice that the W. C. T. U. is backing me up with some heavy testimony along this line, or perhaps I am backing that organization up, for I understand it has been at work for some time. It publishes a little eight-page pamphlet, with the above title. It is largely the report of the Massachusetts State Board of Health, and gives a correct analysis of pretty nearly all the popular patent medicines; and they decide exactly as our Ohio State Food Commissioner has decided, that these things owe their popularity to the alcohol, opium, salicylic acid, cocaine, etc., they contain. Just one illustration: A medicine, largely advertised to assist inebriates in breaking away from the drink habit, had a testimonial from a noted temperance evangelist. Now, this very medicine contained a large per cent of alcohol. I am glad to see that this little pamphlet does not spare ministers of the gospel who lend their names to testimonials, and religious papers that publish glaring advertisements of these dangerous drugs. Permit me to quote a paragraph:

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* No objection has been made, that I notice, to cistern water; hence the inference would be that rain water is better after it has in solution a certain amount of nastiness than when absolutely pure. Filtering is, of course, a great advantage; but no filter as yet invented can take out soluble matters so perfectly as the distiller.

Perhaps I might mention that the water found in our fruit is soft; that is, it has none of the minerals found in water from wells; and in many countries where the water is strongly alkaline, and where fruits are very plentiful and cheap, many people eat fruit when thirsty, and drink almost no water at all. The water in milk is also soft. The animal economy of the cow, acting like a sanitary still, removes the minerals from the water she drinks. This, however, does not do the work so perfectly that a cow may be safely permitted to drink *any* kind of water.

> The habit of "dosing" grows, and one vaunted remedy is tried after another, until the health is thoroughly undermined, and the poor deluded mortal is a physical wreck, his only comfort being, if he takes it, that he has been useful in helping to build a steam yacht or a palace for the patent-medicine manufacturer.

All through Florida you will see palatial mansions built and owned by patent-medicine men whose names have become household words, and their "steam yachts" are almost always an accompaniment. I wish these pamphlets could be scattered broadcast all over the United States. Single copy, 2 cents; 60 cents per 100. Address Mrs. M. M. Allen, 809 South Geddes St., Syracuse, N. Y.

HIGH PRESSURE GARDENING BY A. I. ROOT.

STEAM-BOILERS, POTATOES, CLOVER, AND STRAWBERRIES.

Well, friends, the above is a rather queer "rotation" in farming, is it not? but with myself it comes about in this way: We have for several years been using three ordinary steam-boilers, side by side, of 60 horse power each. With these boilers we use for fuel all the sawdust shavings, and refuse from our factories, the sawdust and shavings being blown directly into the furnace under the boilers. Well, besides the above we have been obliged to buy from *$500 to $600 worth* of coal every year, and yet this slack coal costs us only $1.25 per ton, laid down at that; but during the past few months we have put in a new water-tube boiler — one large boiler, made on a new principle, taking the place of the other three. In the old boilers the water circulates *around* the flues, and the heat passes *through* them. In the new one the water circulates through the flues and the heat is outside of them. Ernest has already told you about it. Well, the new boiler is such an improvement that we have not used a shovelful of coal since it was fired up. Furthermore, we have had wood and kindling to sell, to the extent of several wagonloads a day, because there was more fuel than was needed to keep up steam. The new boiler has given us very much more power than the old ones all together. It was made by the Wilcox & Babcock Co., New York. So much for new machinery.

As we are now using no coal, quite a quantity of wood ashes is produced every day, and we have been told that wood ashes are productive of scab on potatoes where applied to the ground. But I wrote to our Ohio Experiment Station, asking them if, in their opinion, these ashes would be productive of scab, if applied to the clover and strawberries which I use in my rotation. The reply by Prof. W. J. Green, which I give below, I am sure will be of interest to many of our readers. I also asked him if he would recommend mammoth clover instead of medium, where it is all turned under, to prepare the ground for potatoes without cutting any clover or pasturing it off.

> It is commonly belived that unleached ashes favor the development of the potato scab, but I have conducted no experiments to determine whether this is a fact or not. Not being able to give you any thing from my experience on this subject, I do not like to risk an opinion, as it is a matter of considerable importance to you. I suggest that you write to the Experiment Station, New Haven, Conn.; also to the Experiment Station, Amherst, Mass. I think, however, that if I were situated as you are I should not hesitate to use the ashes on clover, and to plow the clover under for potatoes. I do not believe that you will have as much trouble with the ashes causing scab as with the scab germs which remain over in the soil from one potato crop to another. The ashes which you are using are, of course, less valuable than those made from hard wood; but if ashes do have any effect in promoting the growth of the scab-germs it is probable that it would not make much difference what kind of wood they were from.
>
> You speak of growing potatoes and strawberries with clover for rotation. Permit me to call your attention to a fact which you no doubt have observed, and which may be of value to you. We have had so many successful potato crops planted in July, on ground where a crop of strawberries had been grown, that I am beginning to think the strawberry crop is an excellent one to precede potatoes. More than that, if the potatoes are laid out about this time of the year, or some time in May, and allowed to sprout in the light, it is not likely that there will be much, if any, scab on them. Such has been our experience; and I think now that, if I were growing potatoes for seed, I would take just this course. Put the potatoes out to sprout about the middle of April; plant about the first of July, on ground where a strawberry-bed had just been turned under. We secured in this manner 200 bushels of Bovee per acre in 1897, and 300 bushels of Enormous in 1898. Not only this, but all that we have grown in this manner were almost entirely free from scab. I do not think that the Mammoth clover would be any better for you than the medium.
>
> W. J. GREEN.
>
> The Ohio Ag. Ex. Sta., Wooster, O.

LONG-RANGE FORECASTS.

On page 378 of our last issue, I alluded to a slander on the United States Weather Bureau. Since then a letter from the chief of the Weather Bureau has been addressed to me on the subject, and I take pleasure in submitting it to our readers:

> U. S. DEPARTMENT OF AGRICULTURE,
> WEATHER BUREAU.
> Washington, D. C., May 4, 1899.
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> *Mr. A. I. Root, Displayman, Weather Bureau, Medina, Ohio:* — *Sir:* — Referring to clipping from daily paper, giving long-range forecasts, which are alleged to have been furnished the Life-saving Service by the

Weather Bureau, and to your remarks in connection therewith, on Form 1043—Met'l., both of which have been referred to this office by Mr. J. Warren Smith, official in charge of the Columbus office of the Weather Bureau, I beg to say that forecasts of the character given, which cover not only the month of May but the entire year, are not issued by this office, nor by any office or official of this Bureau, and I concur with you in the opinion that misstatements of this kind lead to the impression that the Weather Bureau is entering the domain of charlatanism, and that they should be promptly corrected.

The forecasts of the Weather Bureau are calculations based upon telegraphic reports of weather conditions throughout the United States and Canada; and during the season of tropical storms the field of observation is enlarged, and includes the West Indies, the shores of the Caribbean Sea, and the Mexican coast of the Gulf of Mexico. The period covered by these calculations, or forecasts, is necessarily limited to the time required for storms or fair-weather types (after their appearance or inception), to traverse in whole or in part the region of observation. As our continental storms and other types of weather move, as a rule, from west to east, and the storms traverse the continent in three to four days, it is obvious that a forecast for a greater period can not be made; and experience has shown that it is not possible to determine the exact course and character of a storm over the eastern part of the continent when its presence is directed over the Pacific-coast districts; neither is it possible to project accurately a storm's path from the Rocky Mountains to the Atlantic-coast line. As a matter of fact, atmospheric movements can be calculated with a degree of accuracy that entitles the calculations to be classed as forecasts for periods not exceeding 48 hours, and any statements of weather conditions for greater periods can safely be considered guesswork.

Statements are sometimes made of the average weather conditions of a section or locality, as shown by records of observations which cover a period of many years. Such statements are valuable in so far as they represent the general character of the weather for any month or months, but are valueless when an attempt is made to apply the results obtained to single days; and forecasts, to be of practical value, must be applicable to specified days. In this connection it may be stated that the only so-called long-range forecasts that possess the merit of having been based upon any form of calculation are those which are made up of the averages referred to; all others, without any reservation, are well within the domain of charlatanism. Very respectfully,

WILLIS L. MOORE,
Chief U. S. Weather Bureau.

USING AN ONION FOR A NEST-EGG, ETC.

One of the girls in the paper-room informs me they tried my new invention, but the good old hen did not seem to like the onion "flavor," and left her nest and hunted a new one. Now, I think that hen must be too aristocratic; but if it works that way every time, we have a big invention still. When you want to "break up" a hen that is determined to sit, just give her a nestful of onions. If she goes off in a huff you have broken up her sitting. If she sticks to the nest you can just give her a lot of nice eggs after she has had the onions a few days, and she and the chicks will be free from vermin. You see we are a gainer by taking either horn of the dilemma.

KIND WORDS FROM OUR CUSTOMERS.

The goods arrived to-night all right. Many thanks for your prompt, kind treatment. It is a pleasure to do business with a firm that does as well as and better than it agrees. EARL Y. SAFFORD.

Salem, N. Y., April 22.

I give you credit for being the most prompt company for filling mail orders that I have ever had any dealings with. Whenever I order any thing from you I expect it in five days or a week, while things ordered from some other companies are sometimes two or three weeks coming. J. P. F. SMITH.

Aliceville, Kan., April 26.

GLEANINGS AND ITS SUPERLATIVELY HIGH MORAL TONE.

GLEANINGS is a fine journal, and almost the greatest attraction it has is its superlatively high moral tone, which, in a large measure, seems a characteristic of bee-men. It's the best business-religious magazine I know of. E. B. ROOD.

Jacksonville, Fla., April 11.

ANOTHER USE FOR THE FAULTLESS SPRAYER.

Did you know that one of those little implements for spraying makes a fair sort of powder-gun? They are not as good, likely, as the more expensive implements made especially for that purpose, but I find one quite useful. I find it necessary to turn the implement upside down very frequently to keep the contents loosened up, and in a condition to be blown or drawn out by the air. R. M. REYNOLDS.

E. Springfield, O., April 12.

GLEANINGS GROWING BETTER.

I want to tell friend Ernest how I am pleased with GLEANINGS. It seems to get better every time. I learn something new and useful from every copy. I feel like writing Mrs. Barber a private letter of thanks for giving us her plan of starting bees in sections, for I believe it will work, and I will try it at once. I put a super of unfinished extracting-frames on a strong hive a few days ago, and in about three days I found the bees working in the racks I was just thinking of trying boxes under them, and Mrs. B.'s article came just in time to help me out of the doubt.

Utopia, S. C., Apr. 21. W. I. HERBERT.

The sections you sent me are magnificent. The V groove is cut just deep enough to give good strength, and on just the right bevel to fold at right angles, and no further. Your material is perfect. I must give you credit for turning out the best sections I have ever seen. The Hoffman brood-frame would be better if the wide part of end-piece extended 2½ inches further down I notice in overhauling some of my hives in which the bees died during winter that the comb would seldom deviate from being straight until it came to the narrow part of the end-piece.

Nirvana, Mich., Apr. 17. F. D. LACY.

I may not know when my time expires; but I want GLEANINGS all the time. I count the days for it to arrive. Perhaps I read it as no one else does. I begin at the last end, looking for specials; after that I turn to the first page for the Stray Straws; after that I read the solid matter. As a whole it is par excellence. Long may it wave

I see that A. I. is getting old. I am sorry to know it. I want him to live a long time yet for the benefit of humanity. I think he is doing the best that can be done for that somewhat frail organization. Ply the water. It is the best medicine known to man, and perhaps to angels. E. N. SWINBURN.

Mexia, Tex., March 22.

Dear Sirs:—I inclose a small order. As I intend to increase my stock this year I expect to send you orders for other supplies later on. My first order for this year is received. It was for 60 supers, 500 special fences, and 30 pounds of foundation. When I received them I could almost cry for joy. This is the first order for supplies that I ever received, since I've been in the business, that was free from error or bad workmanship, and I have ordered goods from six different supply-houses, including yours.

Once upon a time I was thrown into a large stream of water. I was taken with cramp, and could not move a muscle; but I was perfectly conscious. There I floated face downward, and all the bad things I ever did came back to me—some things I thought I had forgotten. Suddenly I was seized and pulled ashore by the one who threw me in, when I immediately regained full control of all my muscles. I thought of this incident when I unpacked your last shipment. Now, I am very particular about every thing fitting as it should about a bee-hive; and when I beheld the lovely workmanship on the fences, supers, foundation, and the Tinker zinc; and when I pulled out my pocket-rule and found the measurements *exactly* as I ordered them; and when I saw that the fences were billed at *less* than the price I quoted in my order, then all the bad things I ever said about the Root Co. came back to me and I felt ashamed.

Eden, N. Y., Apr. 22. E. W. BROWN.

Brother Root:—Wife said we ought to tell you how much we appreciate Home talks in GLEANINGS. I guess she is a little like Sister Root—lets the men do the talking.

We took GLEANINGS first for bee news, and, of course, read Homes; and when you told of the Holy Spirit's dealings with you we soon realized you had something we did not have; but now, praise the Lord, we know something of this deeper work of grace in our hearts by real experience; and it was largely through your experience we were led into it. The book you so highly recommend, "The Christian's Secret of a Happy Life," makes this grand experience very plain. Our Homes is practical every-day religion. The help and encouragement it has given, you may never know till "we know as we are known."

Alsea, Ore. F. A. BATES.

I have just finished reading Our Homes, published twenty years ago this month, as well as for Aug., 1880, and Dec., 1881. After looking at your picture, with Blue Eyes on your knee, I desire to make one request; and that is, that the first number for 1899 contain the picture of all the Roots and Rootlets in a family group, for I know there are thousands who would be pleased to see their far-away friends, even if only on paper.

I see in my last paper that Mr. Lamberson considers himself a silent friend; but that will not do me, as I am never silent in praise of GLEANINGS and your company when a friend wants bee news. A gentleman five miles from my place called, and we held a bee convention He wished to learn bee culture. I advised him to send for the A B C book and GLEANINGS. I gave him one of your catalogs, as you sent me two. I am not afraid that he will hurt my trade, for a "pleased customer is a talking advertisement," and there is room for one more bee-keeper, the same as when I began.

Mohawk, N. Y. C. R. MORTS.

SPECIAL NOTICES BY BUSINESS MANAGER

ADVANCE IN PRICE OF PERFORATED ZINC.

The price of sheet zinc continues to advance to such a degree that we are compelled to make a further advance in perforated-zinc sheets and honey-boards, the advance to take effect immediately. Honey-boards are advanced 2 cents each right through the list on all numbers, and both retail and wholesale. Root zinc strips will be $1.00 per 100. Root zinc sheets, 28x96, will be $1.60 per sheet. Tinker zinc strips will be $1.40 per 100. Tinker zinc sheets, 24x40, 75c each. We have used a carload of 12 tons of sheet zinc during the past six months, and the demand increases.

DEEP DOVETAILED HIVES.

Referring to the article of A. N. Draper, in last issue, we have had a number of calls for the extra-deep hives from those wishing to try them. These hives will be wanted only in 10-frame size; and the only change from regular fixtures, is in the brood-chambers, frames, and division-boards, all of which are made 2⅛ inches deeper. The regular bottom, cover, and supers are used. We are prepared to furnish these deep Dovetailed hives, in any of the 10-frame combinations, from Medina only, at 25c each extra; in lots of 5 or more, 20c each extra. In ordering, use the regular hive number preceded or followed by the word "deep."

A LADIES' $100 CLEVELAND WHEEL, ALMOST NEW, FOR HONEY.

We have on hand a second-hand Cleveland ladies' wheel, $100 pattern, model 28. It has been ridden but very little, and is almost new; gear 66, 7-inch crank, single-tube tires (Goodrich), wood handle-bars, brake, and gear case. This last is a very important feature, and the chain can be run a year without attention because the gearing is shut up in a tight case, closing out moisture, dust, and grit. We will take $35 cash, or honey, either extracted or comb, at market prices, to the amount of $35. Speak soon if you wish to secure this bargain, as our Clevelands have nearly all been sold, for the members of the Root Co. get a new wheel every season.

ONE TANDEM FOR HONEY.

We still have on hand one Remington combination tandem, in fine order, and as good as new, that cost us at wholesale $108, that we will sell for $35 cash or $35 worth of honey at market prices. Full particulars on both wheels will be given on application.

Special Notices by A. I. Root.

The German doctor who is responsible, so far as I can learn, for all the newspaper statements in regard to the danger of distilled water is Dr. Hans Koeppe.

ALFALFA SEED—ADVANCE IN PRICE.

Instead of $4 50 per bushel, as given in our seed catalog, read $5 50 per bushel; $3.00 per ½ bushel; peck, $1.60; pound, 12 cts.; pound by mail, 20 cts.

JAPANESE BUCKWHEAT—ADVANCE IN PRICE.

Greatly to my surprise, this variety of buckwheat has run up so that the best figures we can make at present writing are 35 cts. per peck; 60 cts. per half-bushel; $1.10 per bushel. If any of our readers have any to spare, I wish they would let us know, or advertise it in GLEANINGS, for the time to sow it is before a great while. If the price only holds up to something like what it is now, it will be a splendid thing for farmers and bee-keepers—that is, if they can get hold of some seed so as to raise a crop.

THE FAULTLESS SPRAYER.

The demand for these and the sale of them are unprecedented. Fourteen dozen brass ones were placed in the store one morning, and before night we were told there were not enough to fill orders; but before another night we had another stack in by express, and now we are just about holding our own. By the way, even though this sprayer is well named "Faultless," just one trouble has come up If you notice on the card attached to each sprayer, it says you must *oil the leather plunger* whenever it is dry. Now, there have been some complaints that the sprayer did not work right. Two persons said it could not work without any connection between the pump and the tank; but after we told them to oil the plunger according to directions printed on the card attached to each machine we did not hear any more complaint. Now, please remember Paris green is destructive to leather and every thing else, and you had better wash it off after using, and be sure the leather plunger is kept *soft and pliable with oil.*

"WISE YET FOOLISH."

BY ANONYMOUS.

Why doth the little foolish bee
  Come out in winter chill
To see the sun and breathe the air
  That's always sure to kill?

How quickly will the cold wind blow
  Clear through her summer dress,
And leave her out quite dead to rights,
  All curled up in the grass!

Why can't she wait, e'en though 'tis late,
  Till dandelions grow?
Then she can hop from top to top—
  Sip nectar as she goes.

But then, you know, they say 'tis so,
  She lives for just one year;—
Must early start to do her part
  Or have the queen to fear.

MORAL.

It's good to try, e'en though you die,
  To do the best you can,
Than stand and rot in just one spot—
  Move on, and be a man.

Medina, O., March 28.

GLEANINGS
in Bee Culture
Clubbing Rates.

For One Dollar.

GLEANINGS and your choice of the following papers one year.

AMERICAN AGRICULTURIST with Farmer's Almanac.
ORANGE JUDD FARMER with Farmer's Almanac.
N. E. HOMESTEAD with Farmer's Almanac.
FARM JOURNAL.
POULTRY KEEPER.

For One Dollar and Ten Cents.

GLEANINGS and your choice of the following papers one year.

PRACTICAL FARMER, PRAIRIE FARMER, MICHIGAN FARMER, OHIO FARMER.

One Dollar and Twenty-five Cts.

GLEANINGS and RURAL NEW-YORKER one year.

One Dollar and Thirty Cents.

GLEANINGS and NATIONAL STOCKMAN AND FARMER one year.

One Dollar and Fifty Cents.

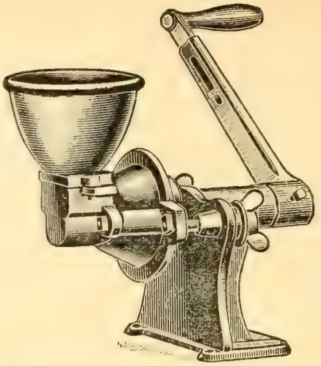
GLEANINGS and COSMOPOLITAN or MCCLURE'S MAGAZINE one year.

GLEANINGS ONE YEAR, and one untested Italian queen, for $1.00 only. We begin mailing these queens in June, and orders are filled in rotation, so the sooner your order comes, the earlier you will get the queen.

GLEANINGS ONE YEAR, and No. 1 Repairing Outfit. Price of this combination only $1.75. We can ship these outfits from Syracuse, N. Y., Mechanic Falls, Me., Medina, O., or Des Moines, Iowa, so the freight will be low.

GLEANINGS ONE YEAR, and Mantel Clock, both for $4.50. Can ship clocks from Cleveland or New York city.

Last of all, if you don't want any of these clubbing offers, send us 50 cents for Gleanings the remainder of the year.



Do It Yourself.

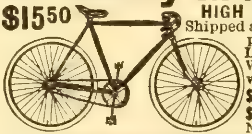
Be your own Miller....

Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**

Address **The Frank Machinery Co., Buffalo, N. Y.**

In writing to advertisers, mention Gleanings.

No Money in Advance!

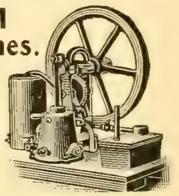


$15.50 HIGH GRADE BICYCLES. Shipped anywhere C. O. D., with privilege to examine. Latest styles for Men Women, Boys and Girls, well made and durable.

$60 "Oakwood" $24.50
$50 "Arlington" $22.00

No better wheels made. Others at $10, $13.50, $15.50, $17.50 & $19.50; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

Pierce FARM Engines.

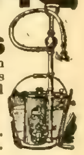


3-4 and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. **Pumping Engines** all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO.,
BOX 17. Racine, Wis.

In writing, mention GLEANINGS.

SPRAYING



with our new patent **Kerosene Sprayers** is simple indeed. Kerosene emulsion made while pumping. 12 varieties sprayers, Bordeaux and Vermorel Nozzles, the "World's Best."

THE DEMING CO., SALEM, O.
Western Agents, Hennion & Hubbell. Chicago. Catalogue and formulas free.

In writing, mention GLEANINGS.

CHAS. ISRAEL & BRO.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.

Honey and Beeswax.

Liberal Advances made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

$100=Queen.

Several times in my life I have seriously considered the idea of attempting the development of a superior strain of bees. I knew that it would require years of careful, patient, persistent work in the way of selection, crossing, testing, etc., and there have always seemed to be too many irons in the fire for me to make room for this one. Some time I may make the attempt; at present, however, I am glad to know that one man, by giving twenty years of his life to the work, has met with a fair measure of success. I have reference to the breeder mentioned in my last advertisement of superior stock. Being a little curious to know along what lines he had worked, I asked him to tell me, and from his letter I make the following extract :

In regard to the origin of my strain of Italians, I would say they were developed by selection and crossing. The first Italian queen that I ever possessed was of the Thos. G. Newman stock. The next was of A. I. Root's red-clover stock, purchased in 1881. In 1882 I purchased one of friend Root's best imported queens, for which I paid $6 00. She was a valuable queen, indeed; producing workers which were hardy, and regular hustlers for gathering honey. I stocked my apiary with her daughters, saving only a few queens of the other stock to furnish drones. This gave me a direct cross, which, I think, is the secret of my success.

In 1883 I found one of the daughters of the Root imported queen far outstripping everything in the yard in the way of honey-gathering and comb-building; and her bees capped their honey so white that it made it appear the most beautiful comb honey I ever saw. In this queen I had an acquisition. I used her as a breeding-queen. Her bees were not as handsome as the Newman stock, but beautiful HONEY attracted my eye and pocket-book more than fancy bees.

Permit me to say right here that I fear that about nine out of every ten queen-breeders make the mistake of breeding for COLOR, sacrificing business qualities.

I love to look at the beautiful, golden, five-banded Italians; and I wish that they were as good for business as the regular three-banded Italians, but I have tried them and found them sadly wanting.

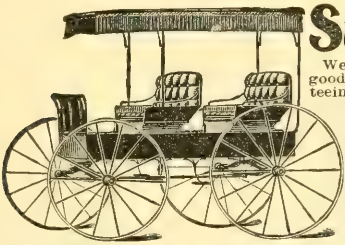
The queen from which I am now breeding is a wonderful queen, to say the least. Her bees are excellent honey-gatherers, and came through the past severe winter in fine shape, and are now just BOOMING. I would not part with this queen for ONE HUNDRED DOLLARS.

This breeder has always advertised in a modest, quiet, unassuming sort of way, nothing in proportion to what the quality of his stock would have warranted, and at last I have decided that I can help him, and benefit my readers at a profit to myself, by advertising these bees in a manner befittingly energetic.

The price of these queens will be $1 50 each. This may seem like a high price, but the man who pays it will make dollars where this breeder and myself make cents; and when you come to read the conditions under which they are sold it will not seem so high. The queens sent out will all be young queens, just beginning to lay, but, as there are no black bees in the vicinity, it is not likely that any will prove impurely mated. If any queen SHOULD prove to be impurely mated, another will be sent free of charge. Safe arrival in first-class condition guaranteed. Instructions for introducing will be sent to each purchaser, and, if these instructions are followed, and the queen is lost, another will be sent free of charge. This is not all; if, at any time within two years, a purchaser, for any reason WHATEVER, is not satisfied with his bargain, he can return the queen, and his money will be refunded, and fifty cents extra sent to pay him for his trouble. It will be seen that the purchaser runs NO RISK WHATEVER. If a queen does not arrive in good condition another is sent. If he loses her in introducing, another is sent. If she should prove impurely mated, another is sent. If the queen proves a poor layer, or the stock does not come up to the expectations, or there is ANY reason why the bargain is not satisfactory, the queen can be returned and the money will be refunded, and the customer fairly well paid for his trouble. I could not make this last promise if I did not KNOW that the stock is REALLY SUPERIOR.

I said that the price would be $1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one sending $1 00 for the Review for 1899 can have a queen for $1.00; that is, I will send the Review for 1899 and one queen for $2.00. Of course, this special offer is made for the sake of getting the Review into the hands of those who are unacquainted with its merits.

W. Z. Hutchinson, = = Flint, Michigan.



No. 521--Canopy-Top Duplex Wagon, with curtains all around, storm apron and pole or shafts. Price $50; as good as sells for $80.

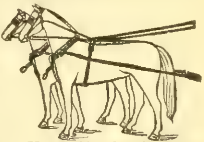
Satisfaction Guaranteed

We feel so certain of our ability to satisfy you both as to quality of goods and price that we do not hesitate to ship for inspection, guaranteeing satisfaction. We are further justified in this position by our 26 years of experience. Could anything be more fair!

We are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.

WE HAVE NO AGENTS.

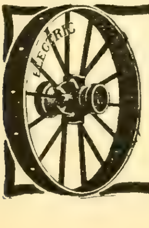
We have no desire to increase the cost to you by this or other means; hence we sell you direct from our factory at wholesale prices. We are not jobbers or dealers. **We make everything we sell.** Largest selection—170 styles of vehicles, 65 styles of harness.



No. 145—Double Spring Wagon Harness. Price $20.75; as good as retails for $28.

SEND FOR LARGE FREE ILLUSTRATED CATALOGUE.

Elkhart Carriage and Harness Mfg. Co., W. B. Pratt, Sec'y, Elkhart, Indiana.



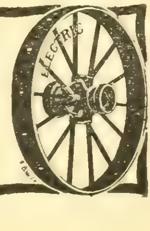
MONEY SAVED IS MONEY EARNED.

If you buy an article of the proper quality you immediately cut off the expense of repair. To save repair saves money. To save money earns money. You stop all expense of repair when you buy a set of

ELECTRIC STEEL WHEELS.

They neither **break down, warp, rot, get loose or shed the tire** and last indefinitely. Made to fit any skein, any height, any width of tire. Send for free illust'd catalogue of these and our ELECTRIC HANDY WAGON.

ELECTRIC WHEEL CO., Box 95 QUINCY, ILL.



HILDRETH & SEGELKEN,

120-122 WEST BROADWAY, NEW YORK.

Jobbers and Commission Merchants.

Honey, Beeswax, Maple Sugar and Syrup.

We desire to inform our friends and patrons that our firm has been reorganized and additional capital added. The business will be conducted under the firm name and style of

HILDRETH & SEGELKEN,

at the old stand, where we have had the pleasure of serving our friends for the past 11 years. Management and supervision will be the same ; and our business methods, those of square and honest dealings, will be practiced as heretofore.

We believe we have won the esteem and confidence of our shippers throughout the country, and that our dealings, as a rule, have been of the most pleasant nature.

Our additional capital will put us in a position to increase our already large business still farther, if possible, and at same time enable us to treat our shippers even more liberally than heretofore, in making advances, etc.

Records will show that we handle by far the bulk of all the honey sent to our market. We make honey the principal part of our business, are personally acquainted and have trade connections all over the country, which enables us to handle any amount of honey to better advantage than any other house.

Our old shippers know us and will bear us out in what we have said. Those bee-keepers who do not know us, and have had no dealings with us, we would cordially invite to correspond with us and make our acquaintance.

We not only handle on commission but buy largely as well, from small lots to carloads, for spot cash. We wish to call the attention of southern bee-keepers to the fact that our market never was in better condition than this season. Old stock is disposed of and the market is bare, with a good demand. New crop will find ready sale and at higher prices than have ruled for years past. We would advise them to send their honey while there is a good demand at good prices, as later on conditions of the market may change. We also handle maple sugar and syrup very extensively, and would be pleased to hear from those having any of these goods to market. In conclusion we wish to extend our thanks to all of our shippers for their past favors and trust to receive their kind consideration in the future.

IF YOU WANT BEES

that will just "roll" in the honey, and that are wonderful red-clover workers, also gentle to handle and exceedingly hardy, then try Moore's strain of Italians—the result of 20 years of careful breeding by selecting the finest honey-gathering stock each season from which to rear queens, and stocking my apiary with drones reared from other fine honey-gathering stock not akin. Send for circular, and see what my customers say. Warranted queens, $1.00 each; 6 for $5.00; 12 for $9.00. Select warranted, $1.25. Tested, $2.00. Select tested, $2.50. Strong three-frame nucleus, with select tested queen, $4.00. Safe arrival and satisfaction guaranteed. Those who never dealt with me I refer to A. I. Root, who has purchased of me over 900 queens.

J. P. Moore, Lock box 1, Morgan, Pend. Co., Ky.

In writing, mention Gleanings.

Queens. Queens.

If you want good queens try mine. They are strictly pure Italians, and are all purely mated. Tested queens, $1.00; select tested, $1.50; untested, 75c.

A. P. BENDER, Rutherford, N. J.

FOR SALE.—Self-regulating incubators. Guaranteed to hatch 90 per cent Send for catalog. Address **M. E. FIRESTONE, Sidney, Ohio.**

FOR SALE.—Good bicycle for man—lamp, bell, and tools—$20.00, or will trade for bees. Address G. B. LEWIS Co., Indianapolis, Ind.

QUEENS. Untested Italian, $1.00 each; tested, $1.25 each. Catalog free. Address THEODORE BENDER, Canton, Ohio.

EARLY QUEENS NOW READY, $1 00; six for $4.50. After April 15, 75c; six for $4 25; 12 for $8.00. May, six for $3.75; dozen for $7.25. Warranted; safe arrival guaranteed. Two yards. Big stock of fine queens carefully reared by Doolittle's method. Free circular. **J. B. CASE, Port Orange, Fla.**

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

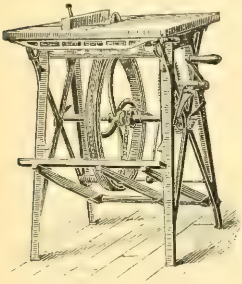
W. H. LAWS, Lavaca, Seb. Co., Ark.

In writing, mention Gleanings.

Your Order for Queens WILL be promptly filled by return mail, with the best of queens. Our strain of Italians is unequaled as honey-gatherers. Send for our price list, and see what others say of our bees.

Tested queens $1.00 each; untested 75c, $8.00 per dozen.

J. W. K. SHAW & CO.,
Loreauville, - Iberia Parish, - Louisiana.



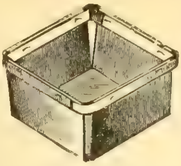
Barnes' Hand and Foot Power Machinery.

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, boxes, etc. *Machines on trial.* Send for illustrated catalogue and prices.

W.F.& John Barnes Co.,
545 Ruby St.,
Rockford, - - Ill.

In writing, mention Gleanings.

Fruit Packages of All Kinds.



—ALSO—

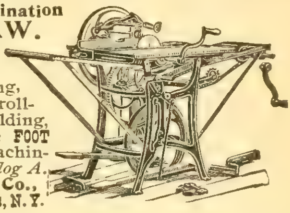
BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX Co.,
Berlin Heights, - Erie Co., Ohio.

Italian BEES AND QUEENS. Queens, $1 00. Bees by the lb., $1.00. Nuclei, two frames with queen, $2.00; one frame, $1.50; each additional frame, 50 cts. each. **Mrs. A. A Simpson, Swarts, Pa.**

Union Combination SAW.



For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line FOOT and HAND POWER machinery. *Send for Catalog A.*
Seneca Falls Mfg. Co.,
44 Water St, Seneca Falls, N. Y.

Wants and Exchange.

WANTED.—To exchange bees, in L. or Dov'd hives, no disease, for beeswax, extracted honey, or cash. H. LATHROP, Browntown. Wis.

WANTED.—To exchange purebred Pekin duck eggs for offers. M. LINDSAY, Tenafly, N. J.

WANTED.—To exchange firearms of every description for old clocks (grandfather).
W. S. AMMON, 216-218 Court St., Reading, Pa.

WANTED.—To exchange one thousand wide frames with tin separators, for something I can use.
C. J. BALDRIDGE, Kendaia, N. Y.

WANTED.—Your address for a free copy of my book on queen-rearing.
HENRY ALLEY, Wenham, Mass.

WANTED.—To furnish my hives and sections, to careful men, for a share of No. 1 clover honey. Also 4 sizes of the prize comb-honey cartons, and 68 pages of "Facts about Bees," for 6 cts. in stamps.
F. DANZENBAKER, Washington, D. C.

WANTED.—To exchange 100 Simplicity hive bodies with wide frames and tin separators, for any thing useful. A. Y. BALDWIN, De Kalb, Ill.

WANTED.—About sixty three frame nuclei without queens, June 15 Give prices, also frame dimensions. WILLIAM FRANKS, Muskegon, Mich.

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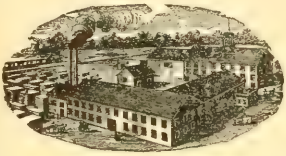

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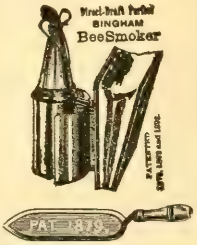
Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

NEW YORK.—Our market is in first-class condition. It is bare of extracted honey, and demand good. New crop is beginning to arrive from the South; and we would advise our southern friends to let their honey come along, feeling confident that we are in position to obtain better prices than for years past. We quote: Fancy, 7@7½; choice, 6@6½; fair, 5½@6; common, 55@60 per gal. Comb honey is well cleaned up. Some demand for white at 11@12; and 9@10 for amber. Demand for dark has ceased. Bee-wax rather quiet at from 26@28.

HILDRETH BROS. & SEGELKEN,
May 22. 120 & 122 West Broadway.

BOSTON.—The demand for both comb and extracted honey has settled down to the usual small proportions of summer, and prices quoted would be shaded some to move, as stocks are a little heavier than is liked at this season of the year. We quote fancy white 12½@13; A No. 1, 11@12; No. 1, 10; light amber, 9; buckwheat, 8; extracted Florida white, 7½@8; light amber, 6½@7; beeswax, 27@28, and pure stock wanted.

BLAKE, SCOTT & LEE,
May 17. 57 Chatham St., Boston, Mass.

PHILADELPHIA.—Since the arrival of Southern vegetables, honey is selling very slowly. There are quite a few lots of comb, off grades, in the market. Extracted honey, for manufacturing purposes, is selling freely. We quote fancy comb, 15@16; amber, 8@12. Extracted white, 7@8; amber, 5@7. Beeswax, 28. We are producers of honey—do not handle on commission.

WM. A. SELSER,
May 20. 10 Vine St., Philadelphia, Pa.

CHICAGO.—Our market is low in stock at present, hence but little is being done in the way of selling. Prices are about as last quoted, and what trading there is done is on that basis. What has come forward of the yield of 1899 is of good quality and color.

R. A. BURNETT & CO.,
May 20. 163 South Water St., Chicago, Ill.

CLEVELAND.—We quote our honey market to-day as follows: Fancy white, 13@14; No. 1, 12@13; fancy amber, 10@11; No. 1, amber, 9@10; fancy dark, 7@8. White extracted, 7@7½.

A. B. WILLIAMS & CO.,
May 19. 80-82 Broadway, Cleveland, Ohio.

ALBANY.—Honey market quiet with but little stock on hand. We quote comb, as before, 7@12 extracted, 5½@7; beeswax, 26@28.

MACDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
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FOR SALE.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60-lb. cans for $7.20.

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$5 per dozen.

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J. D. GIVENS, Lisbon, Texas.

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GLEANINGS IN BEE CULTURE

A Journal Devoted To Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.

$1.00 per Year Medina, Ohio

Vol. XXVII. JUNE 1, 1899. No. 11.

STRAY STRAWS FROM DR C. C. MILLER

DELOS WOOD, p. 399, may be all right to add extra story *above* in California—too cold here.

MR. LITTOOY seems to jingle the shekels a long time over a sale (see p. 396). Sept. 20, 1894, he was jingling the same jingle in *Am. Bee Journal*.

ADRIAN GETAZ thinks I'm a little wild in figuring on the amount of Manum's feeding, for in his "locality" sugar was worth at that time 10 to 15, instead of 5 cents.

THE DESIRABILITY of a uniform system of grading is only exceeded by the difficulty of its attainment. [But I believe we are getting closer to it, as the picture scheme is going to solve the difficulty.—ED.]

"THE PLOT THICKENS!" Onions drive sitting hens off the nest in Medina In Marengo, hens stayed on and chickens came out all right with onions in the nests the last two weeks of sitting. Matter of "locality"?

IN GERMANY a good deal is made of giving bees water in winter. I've tried several times to give my bees water in cellar, but they wouldn't touch it. Dr. Mason says his take it greedily. Wonder what makes the difference.

"BLACK CLOTHING and the aversion with which it is regarded by the bees receives further consideration in GLEANINGS; and it does seem as though the testimony given in proof of this aversion is incontrovertible," says Editor Hutchinson. [Please ask R. L. Taylor to paste this paragraph in his hat.—ED.]

DO BEES consume more stores when they have honey-dew? Some of mine starved with what I supposed were sufficient stores. [A few years ago, I believe, it was agreed that the bees would consume less good stores than of poor. Has there been any thing to change that opinion? I do not remember.—ED.]

ABOUT HALF the colonies I put in cellar last fall are now dead. Honey-dew. Besides, I waited for them to have another flight after Nov. 4, and then took them in Nov. 24 without the flight. [A loss of 50 per cent! My, oh my! and yet I fear that many another has lost as many, but from motives of pride they say nothing about it.—ED.]

HERE I AM, up on the fence again, looking for the best place to alight on the boiling-foul-broody-honey field. [I believe, doctor, you are waiting for me to shove you off, or, rather *pull* you off, on my side. But, haven't I pulled? Come, now, is there any good reason why you should stay on the fence any longer?—ED.]

ON MY RETURN from Illinois Sunday-school convention I sat with editor York and his efficient helpers around his festive board, or, rather, at one side of the board, for the board was up against the wall in the printing-office, and the noon-day lunch tasted all the better because the fair hands that prepared it had been setting type just before.

YOU'RE RIGHT, Mr. Editor, that alternating sections in a super will not always produce decisive results. There's also trouble in having one side of a super filled with one kind of foundation and the other side filled with another, for sometimes there's a marked difference in the working on two sides resulting from a difference in the brood-combs below. I think I'll try both ways.

THE U. S. PURE-FOOD investigation is stirring things up lively at Chicago. Senators Mason and Harris and Prof. Wiley had Editor York on the stand for the greater part of one session, and he was well loaded with solid facts that were corroborated by H. F. Moore and Mrs. Stowe. The testimony will be printed in full in the report to Congress, and it will be nothing strange if some laws are enacted that will not make the way any smoother for adulterators. [The Pure-food Investigating Committee got hold of the right men; indeed, it could have hardly secured better ones. Let the good work go on.—ED.]

"'HE, SHE, OR IT.' Which shall we call the worker bee? The choice is certainly between 'she' and 'it.' There are some arguments for both, but it seems to me that 'it' gets the best of the argument." So says Editor Hutchinson. [Our A B C of Bee Culture, now in process of revision, is having all of its pronouns of the masculine gender, referring to individual bees, changed to neuter —ED.]

IF BEE-GLOVES are worn, I believe those new ones of canvas with linseed oil are fine—away ahead of rubber for comfort, and bees never offer to touch them. The only objections are the smell, and the seams that hurt the hands. A bee-keeper at my elbow prefers hogskin on that account, but to me the smell of the hogskin is horrible. Pooh! [Yes, that is what I thought about those hogskin gloves when I was at your place the last time. ED.]

COFFEE is a good honey-plant in the island of Jamaica; and the bees seem a good thing for the honey crop. A writer in *Bee Chat* says, "I have of my own, 100 colonies of bees located around the coffee-drying ground, and for the past two crops *there has been no light coffee at all;* while on estates only eight or ten miles away they had forty to fifty bags of light coffee. Of course, the bees did it." [I would give something to get a sample of honey from the coffee-plant. It must have a decidedly pleasant flavor to one who is a lover of coffee; but at our house I drink the cereal coffee in place of the real article—not because I do not like coffee, but because it does not like me.—ED.]

AFTER ALL that has passed, it's hard for Stenog to get past that "past." Now tell us, Stenog, when a man is talking, how do you distinguish between "passed" and "past"? and when the same thing is printed, haven't you precisely the same means to decide? If you read to an audience, "The law was passed the past year," will they understand it a whit better than if you read, "The law was past the past year"? And be sure to tell us how you distinguish between the two words when you read what you've written in stenographic characters. [Answering in order, I will say the ear detects the difference, I think. The words are alike in shorthand. Why don't you spell it *passt* instead of *past?* Are we to spell *locked*, *loct?*—ST.]

CLARK A. MONTAGUE says in *Review* that in Northern Michigan their first *sure* source of surplus is crimson clover, filling the gap after fruit-bloom, and worth more than all the other clovers combined. Last year from crimson clover alone the stronger colonies each filled a super holding 8 L. frames. [Crimson clover is not a sure crop, by any means, with us, because the farmers have not learned the art of raising it. We grow it on our honey-farm, and it grows luxuriantly; but our fields are not large enough to produce any perceptible effect in the hives; but the way the bees do work on it is a sight worth beholding. As Mr. Montague says, it comes just between apple-blossoms and clover—just when it is most needed. —ED.]

I AGREE with Stenog that "to leave off the address seems to rob an article of much of the interest that is due to personality and location." And it's an improvement in many cases to have the county instead of the postoffice; easier to locate Onondaga Co. than Borodino P. O., and Hancock Co. than Hamilton P. O. [But if you have the postoffice you have the county too, don't you? Maps and directories are so cheap now that I assume one can as easily learn that Marengo, Ill., is in McHenry Co. as that May 25, 1899, came on Thursday. But suppose a man greatly desires to address you, but simply knows your county — how can he do it? Of course, you might thus escape a big bore, and may be not.—ST.]

ALL RIGHT, Mr. Editor, we'll not "discuss infelicities of expression any more." That's the reason I make no reference to the "vicious trick" and "coarse insinuations" mentioned on p. 346, to which you will not allow me to make reply. [I intended in my footnote, p. 346, to give notice that I believed it would be to the best interest of all parties concerned to draw this discussion to a close. I can not think that discussions relating to the meaning of words, or grammatical discussions, should be allowed to go on in a bee journal, even when good well-meaning men are engaged in them. If, on the other hand, valuable facts on bees are being uncovered, I should be heartily in favor of letting the discussion go on, even if some one did feel that some of his tender corns were being trampled on.—ED.]

"IT IS GENERALLY considered that, for successful wintering, there should be no pollen or bee-bread in the combs" (p. 400). Are you sure about the "generally," Mr. Editor? If so, I'm skeptical as to the correctness of the general consideration. [Some twelve or fifteen years ago, when this discussion was up, if I remember correctly it was agreed that it was desirable to have little or no pollen in the brood-combs filled with stores. Some even went so far as to say that they did not even want honey—that they preferred exclusively sugar syrup without a trace of pollen. Perhaps I have misinterpreted the consensus of opinion that was rendered about the time that I began to take hold of the editorial helm of GLEANINGS. If I am wrong, doctor, twist the helm around a little until it points right. —ED.]

I COVERED the labels under those pictures, p. 293, and took the separate testimony of three persons. One of them agreed with the classification on the page, one thought both No. 1's better than the fancy, and one thought the fancy better in one case and the No. 1 in the other. I confess it would be hard for me to decide, and I certainly would not grade as fancy a section having on one side 15 unsealed cells away from the wood. [The section designated as "fancy" was actually better filled out at the corners than the one marked No. 1. The trouble was, the photo did not show the real distinction; but if you will take another squint I think you will see the difference. Another thing, you must not lose sight of the fact that Niver said that all the pattern sections must be *under* the average of those for each grade; so that the fancy, No. 1, and 2, would look better than the models we had set before us; but I confess myself that I should have preferred to have had *more* difference between the "fancy" and the No. 1; but as it was long after the season, our friend Niver was not able to secure such distinctive specimens as he desired.—Ed.]

"THE DISCOLORATION goes clear through the capping of so-called travel-stained honey," or words to that effect, may sometimes be heard. I arise to say I don't believe that the cappings are often colored clear through. If so, why the common advice to take sections off early, before the bees have time to darken them? I do know that in this "locality" bees cap sections white, and they become dark afterward. But the bees' feet have nothing to do with it. [About a month ago I lifted the cappings of a large number of travel-stained sections; and we had on the floor at that time something like 5000 or 6000 pounds of honey, much of which was travel-stained. I went over dozens and dozens of sections, and I think that, in nearly every case, the stain went clear through the capping. The fact of the matter is, there are two kinds of travel-stain—or, at least, so I think. One is the *real* travel-stain, of which you speak, and the other is the more common, the discoloration resulting from foreign particles such as propolis, strings, old dark wax, and dirt, incorporated in and through the cappings. Suppose, doctor, you look over some travel-stained honey. Lift the cappings, and see how large a per cent of the stain does not go clear through. Perhaps this is a matter of locality; but the honey I referred to came from the east and west, and from all over. J. E. Crane, when here, went over this same honey, and it was he who called my attention to the fact that the stain was not on the surface, but clear through.—Ed.]

THE NESTOR of superintendents of city schools in this country is, I think, Prof. E. A. Gastman, Decatur, Ill. For 38 consecutive years he has been in the public schools of that city, and its superintendent ever since it had a superintendent. On a delightful visit at his home he told me he had never made much money out of bee-keeping (I think he never reached 100 colonies, and his location is poor), but the delightful outdoor work had kept him in condition for going on with his work when others were worn out. I think he's about 65 years young. [The doctor might have said, that, had it not been for the bees, he probably would not have been among us now. Years ago, if I make no mistake, he gave up a lucrative position, having a fat salary attached to it, on account of his health. He preferred a smaller salary, God's pure air, and a longer lease of life. And he got them. The bee-keeping fraternity can rejoice that we have so many professional men in our ranks. We have our lawyers, doctors, members of Congress, and our senators, school-teachers, professors in colleges, many of whom have been driven to bee-keeping as a pleasant and profitable pastime. Such men in our ranks have done much to enrich our literature and exalt our calling. Is there any other rural pursuit that can show such an array of talent?—Ed.]

PICKINGS FROM OUR NEIGHBORS' FIELDS.

BY STENOG.

Our jolliest tune we sing in June
While we gather our winter stores;
Buckwheat and clover we're flying all over
When rainstorms don't keep us indoors.

BEE-KEEPERS' REVIEW.

Wood ashes around hives are said to be a preventive of black ants.

◆

F. A. Gemmill says the greatest amount of wax he has been able to secure from a set of eight Langstroth combs is 3 lbs. Mr. J. B. Hall shows a similar result. Mr. Gemmill used a Hatch press, a view of which is given.

◆

Honey for horse feed is a new fad. Mix it with his common feed, and you will see what sort of coat he will get. Quite likely it will render the horse sleek and fat. Sugar has a similar effect. In an eastern city I once noticed that draymen for sugar-refineries carried sugar in their coatpockets, and fed it to their horses on the boat, and the horses were remarkably smooth.

◆

A fine view of the beautiful residence of Mr. R. McKnight, of Owen Sound, Ontario, graces the May number of the *Review*, also a picture of Mr. McKnight himself and of a "promenade" near his orchard. The pictures give one a restful feeling. By the way, Mr. M., who is that woman coaxing a dog to stand on his hind legs in one picture, and holding him in the next when he is tired out? and that one trying to push that huge tree over? Mr. McKnight writes a very able article to show that honey-dew is the exudation of plants, and not that of plant-lice, etc., often found in great numbers sucking it up. His position is that of Mr. Cowan, and vigorously opposes that of Prof. Cook. Mr. McKnight is one of the most interesting writers among bee-men. I think this one article is worth all the *Review* costs for a whole year.

PROGRESSIVE BEE-KEEPER.

R. C. Aikin has just passed through a political campaign in which he was not only a worker but was on the ticket, and is now in for it to serve his little city as councilman for the next two years. He adds, "May the Lord help us to rout every whisky-selling scheme that dares to ply in our midst." The traditional "amen" is in order just here.

◆

Mr. J. H. De Myer says if he were to start in the bee-business again he would use a 10 L. frame, self-spacing, 3/8 inch to center of frames, or wider top-bars than the thick-top Hoffman, and staple end-spacers, two supers for each hive, and a few extra ones to be used when needed. He would have one of them regular size for half-depth frames, and the other five inches deep for comb honey.

G. W. Williams writes a very strong article in refutation of the theory that queens lay in queen-cells, Mr. Doolittle claiming that the theory is fully established. Mr. Williams says: "Mr. D. dare not say he ever saw a queen deposit an egg in a queen-cell. If she does this, as he claims, with the number of queens he has raised, and as long as he has kept bees, had he been at all observant he would certainly have seen this performance." Mr. Doolittle is accused of trying to strengthen his position by the use of the Bible language, "To multiply and replenish the earth." To this Mr. W. replies, "I know of no controversy on the multiplying question. It is as to one particular point how it is done. Bees multiply, and they have their way about it; but it is not done by the queen's pushing the work any more than to lay an egg out of which the bees *can* make a stepmother." The whole subject is interesting, and is ably handled by Mr. Williams. The points really at issue, it seems, are these: Mr. Doolittle claims that queens may and sometimes do lay directly in queen-cells, while Mr. Williams claims they *never* do, but says the bees carry an egg and put it into a queen-cell and then develop it into a queen. I do not see that Mr. Doolittle denies that such is *usually* the case.

* * *

AMERICAN BEE JOURNAL.

Honey a cure for smallpox is highly recommended by a correspondent in Mexico. He says the report as to the efficacy of honey for that dreadful malady is true. He adds that in Mexico the smallpox comes nearly every year, when the rainy season ends. The honey cure was published in nearly all the papers, and for that reason he sold his honey as soon as he got it. Mr. Dadant advises all the bee-papers to publish this; for, he says, if honey proves to be a good medicine for smallpox it will be a great help to mankind and also help the bee-keepers to dispose of their crops.

* * *

In an essay read at the Wisconsin bee-keepers' convention, the president, Mr. F. Wilcox, referred to the declining price in honey for the last twenty years. He says that in 1881 the price of comb honey ranged from 14 to 22 cts., and extracted from 8 to 10. In 1897 comb honey was 8 to 12 cts., and extracted 4 to 6. Mr. W. thinks the diminished profits of other pursuits have induced many to engage in bee-keeping who would not otherwise do so, and these help to drag prices down. Is it not likely that the selling price of honey, like that of butter, depends almost entirely on its appearance? Some comb honey was received here at the Home of the Honey-bees last week. The comb was next to snow in whiteness, and the whole appearance of the product was "Fancy A No. 1 gilt edge," etc. It was offered at the price of 20 cts. per section of about 14 ounces. It was all taken instantly, even at that price, and so the writer, like mother Hubbard's dog, "got none," except a little that leaked out. I would gladly pay 25 or even 30 cents for such honey all the time. I am confident that almost any amount of it could be sold in the cities, to a certain class who care nothing for money provided an article suits them, at 40 cts. a section. Of course, not all can produce such honey; but so long as the poorest regulates the price of the best, just as the worst boy in school "regulates" the morals of the rest, it behooves somebody to see that the poorer grades are improved.

GENERAL CORRESPONDENCE

APIS DORSATA CAUGHT AT LAST.

An Interesting Account of how a Gleanings Correspondent Climbed a Tree and Captured the Giant Bees; Their Beauties Extolled.

BY W. E. RAMBO.

Mr. E. R. Root:—I herewith inclose you the result of the correspondence with the "Pioneer" referred to in a previous letter. The editor thought better to refer me to some source of information than to publish my request, although he agreed to the latter if I desired. The extract from the "Dictionary of Economic Products" was kindly sent me by the Secretary of the Bombay Natural History Society. It will speak for itself. I also learn that at one time a gentleman published a work on bee keeping in India, but it is out of print. I suppose it would not likely add any thing not in the extract sent you about *Apis dorsata*.

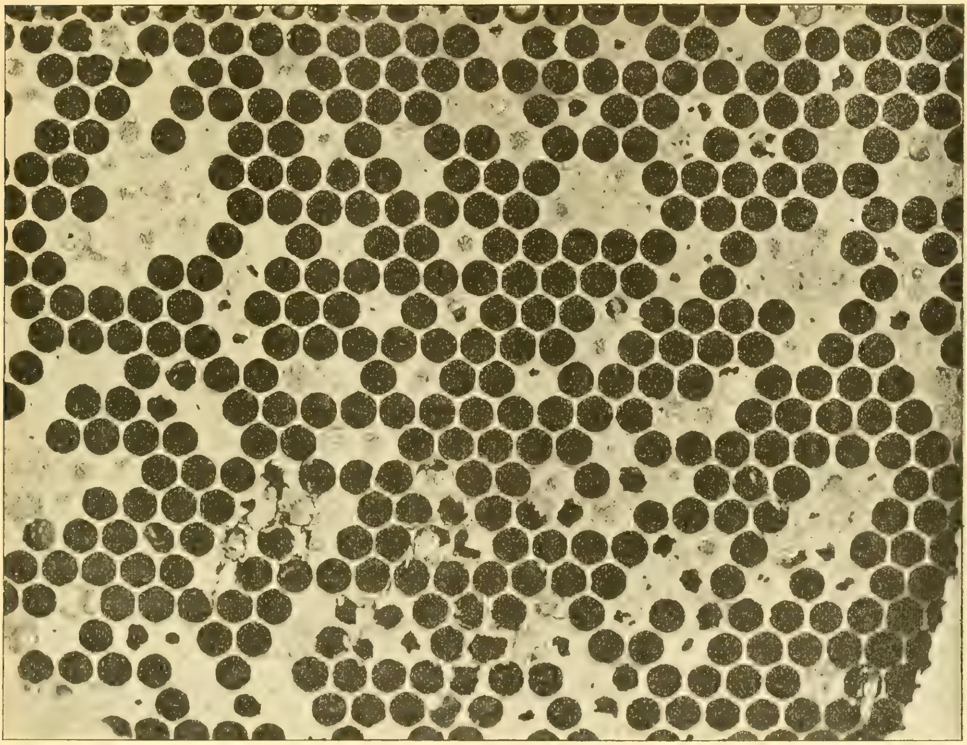
About half a mile from here I have at last found *Apis dorsata*, a single colony. They are in a very large tree, about sixty feet from the ground, on a branch about five or six inches through, with absolutely nothing to stand on, or any means of approach except the limb itself. I have succeeded in climbing within thirty feet (guesswork) of them, and about ten feet below, and have taken a photograph of the nest, the negative of which I send you, and also a print or two, if I can get the latter ready in time. I have arranged to go to-night to get specimens of them, if it is at all possible, and to hive them also if I can. If I can do one it is probably possible to do the other. The photo had to be taken at an angle, and so does not show the actual shape of the comb, which is rather longer than wide. Judging from the appearance at a distance, I should say that the actual size is about 20 to 24 inches long by about 15 to 18 or 20 wide, width counted perpendicularly. This is not very accurate guessing, but the best I can do. If I can get near enough to the comb, and find opportunity, I shall get the exact measurements. The photo of the nest is not very useful, on account of its size. I couldn ot get any closer. I did my best to get a clean negative, and think it may stand enlargement. I wanted to get close enough to show the shape of the bees, so that an enlargement would bring them out individually. This, I fear, I did not succeed in doing. However, I send what I have obtained.

If the bee-friends could but see these beautiful bees as I saw them through field-glasses they would want to have them, if only for their beauty. At thirty feet they seemed about an inch long, and every bee looked like a five-banded Italian queen. The comb was completely hidden by the bees. They looked so innocent as to make me itch to catch them in my hands. Doubtless I should have itched worse if I had done so. But they were beauties.

Here I leave this epistle till I see what is the result of to-night's raid. Said results may be too late for this week's post.

so that Mr. McGavran may take them to you. He sails from Bombay Saturday.

I spent from 9 : 30 last night till 4 : 30 A. M. in the tree. It is the hardest job of climbing I ever tried. I could get no climbers, as it is impossible, almost, to get any thing made here, and our tools are not yet here ; so I had to engineer my way up with ropes and makeshifts. Once up, I had to drag up poles and build a platform on the branch the bees were under, and another ; then I could just get to the nest with outstretched arms. Perhaps worst of all I had to guess at what was best to do, as I had never handled *Apis dorsata*, and had no instructions. So I let in on them with mixed wood and tobacco smoke from above, thinking that they might, having no retreat, just sit still and let me stupefy them and sweep them into my sheet. Naturally I suppose I smoked the strongest from my way; and as they retreated, instead of standing fire, they crawled away from me and stopped out of my reach on the branch, leaving the comb bare. I think I got about half of them, and fear the queen was in the other lot, but do not know. I did not succeed in seeing her. Having let down the bees I had caught, I drew up another sheet and held it by the corners and cut the comb off into it. It was thirty



A GOOD SPECIMEN OF FOUL BROOD; PHOTOGRAPHED BY THOS. WM. COWAN. SEE EDITORIALS.

April 13.—I will try to get you a word in time for this post. I found at last that my cyanide for killing specimens was all gone. I caught a number in a bottle, borrowed the hospital assistant's keys (the doctor is away from the station) to get some alcohol I knew of, and can not find that. That was at 5 A. M. Since that I have sent for the hospital assistant twice, and he was gone both times (the second time just now), and in the mean time he has been after me, and found me asleep, and did not waken me. I am anxious to get specimens in alcohol by to-day's train, inches by about fifteen deep. I was congratulating myself upon my successful work on the comb, when, without any slipping of the cloth, the greater portion of it went crash on the ground below, and was made into jam. I lowered the rest carefully, and found that I had enough sealed brood to fill the depth of one section (L. frame), and nearly its length and nearly half of another. I also gathered up scraps enough of the broken lot to fill a third, and then I placed in the corners of the hive considerable material that Italians would work over. I put in only three frames, so as to give them all the air-space they would need. Thus I left them. If the queen is with the hive party, there is a chance of their remaining. This is the story up to date. I got the alcohol, but it is nearly train time.

Damoh, C. P., India.

[The following is the extract referred to :]

EXTRACT FROM DR. WATTS' DICTIONARY OF THE ECONOMIC PRODUCTS OF INDIA.

Group I.—Apis dorsata.

Description.—The bees of this group differ from *Apis mellifica* in being larger ; in building 4½ cells to the inch ; in the shape of the abdomen ; in having 13 rows of bristles forming the pollen-basket ; in the relative positions of the eyes and ocelli, and in a very slightly different arrangement of nervures of the anterior wings. It would seem that this bee does not build larger cells for drones than for workers, and that the drone is similar in shape and size to the worker, differing principally in the head, which resembles the head of the drone of *A. mellifica.* It builds one large comb, 3 to 5 feet long, 2 or more deep. The brood-comb is 1¼ inches thick, and the store-comb much thicker. Although both *A. dorsata* and *A. florea* are normally single-comb bees, under exceptionally favorable circumstances they build a second comb and their single combs are built much larger than otherwise usual ; *e. g.*, *A. dorsata* building in rock cavities ; and a comb of *A. florea* built in a dwelling-house was found to be about 5 feet in area, in addition to being in some places double, the comb of this bee being usually single, and perhaps less than one foot in area. Probably in all these very large nests there are several queens, and they are not comparable to single stocks of *A. mellifica.* The arrangement of the stores and brood is the same as in other species. *A. dorsata*, as found in India, is exceedingly constant in size and color. It is found in forests, but frequently builds in town. It is reputed to be very vicious ; but unless disturbed it does not attack, and could be handled by some of the measures usually employed by bee-keepers.

Habitat.—Apis dorsata is found all over India, but not at great heights above sea-level. It is said to be found at 2000 feet or more in Bhutan, but may justly be termed a tropical insect indigenous to the plains.

Economic information.—The large size of the comb and bee has excited hopes of this insect proving, under cultivation, of great economic value, and European bee-keepers have endeavored to obtain stocks of it. Mr. Benton, a dealer in foreign bees, went to Ceylon for the purpose ; but he was unfortunate in his efforts, for the queens died. He states he does not consider them so vicious as reputed, when once hived, but he gave up the attempt to cultivate the species. Several years previously, the writer undertook to obtain stocks, if likely to prove useful in Europe, but did not hive any, as it was considered better first to investigate the economic value of other Indian species. The reasons against any attempt to cultivate *A. dorsata* in hives are : 1. It builds naturally in the open ; 2. It builds normally only one comb, so that the honey can not be removed without removing the brood also ; 3. Although it builds a very large comb, this one comb is not so great in cubic capacity, normally, as the combs built by a stock of *Apis mellifica*, which is readily cultivated and well understood already ; 4. It is found only in a tropical climate, and in this respect differs from *A. mellifica* and *A. Indica*, the most productive varieties of which are apparently indigenous to localities having more or less severe winters. *A. dorsata* probably might be cultivated in a semi-wild state in the forests, and the produce largely increased by this means. The present practice of indiscriminately robbing every stock found of all its comb, stores, and brood, might be replaced by a more rational mode of procedure ; for, although not hived, many of the processes applied in the economic management of *A. mellifica* might be applied to the semi-wild *A. dorsata.* The bees might be fed to stimulate breeding or to prevent starvation. Excessive swarming might be interfered with. Certain stocks might be selected to breed from, as in the old style of bee-keeping. It might be found practicable to remove only portions of the comb, and the bees might be induced to build on or in artificial structures more accessible than the branches of trees.

Large quantities of both wax and honey are taken in the forests from *A. dorsata.* This wax appears to be bought by dealers, and some is exported. The honey is sold and mostly consumed locally, but is commonly of very inferior quality, being contaminated with pollen, the juices of larvæ, etc. It is also commonly thin, and liable to fermentation. The use of a simple extractor, care being taken to ripen when necessary, and to grade it instead of mixing good and bad together—these and other simple improvements would greatly increase the value of the honey. It appears highly probable that most of the honey produced by bees building in open air is thin, and requires ripening by evaporation to remove its liability to fermentation. Out of 60 to 70 specimens sent to the Calcutta exhibition, very few were free from fermentation.

[Our readers will remember that Mr. W. E. Rambo, a missionary from India, visited us a year or so ago. Knowing that he must be in the region where these giant bees live, and as there was considerable objection at that time against urging the government to import these bees, I asked Mr. Rambo if he did not think he could secure them when he returned. He thought he could.

While he was here I took pains to instruct him in regard to *Apis mellifica*, how to handle them, and when he left for India we sent with him a shipment of hives in which to hive *Apis dorsata* and *Apis Indica*. Mr. Rambo had been unsuccessful in finding these bees up till within a very short time; but now it appears that success in a measure has crowned his efforts at last. Even if he did not get all the bees, he has learned something of their habits; that they are not particularly cross, can be handled, as is evident from the fact that he says nothing about their being enraged or of his being stung. Situated as he was they could have made it very uncomfortable for him, to say the least.

The negative that he refers to, I am sorry to say, came smashed in pieces; so if a print off this negative comes to hand I shall have it enlarged and present it to our readers at the earliest opportunity.

There are many of us who would have liked to have the sight of these bees that Mr. Rambo had; and now that he has become a little better acquainted with them, I feel sure he will succeed in giving us a close photographic view of a colony; and if we can get a photograph *once in our hands* we will show them just as they are in their natural habitat, in all their native beauty and glory.

I shall watch eagerly the next mail from India in hopes that Mr. Rambo has the half with the queen; if not, I am in hopes that he can make that half raise one, and thus place us in position to know whether they can be confined in a hive in their own climate.—Ed.]

* * *

QUEENS FROM OLD LARVÆ.

Queens Reared by Nature vs. Queens Reared by the Doolittle Method; some Misconceptions Corrected.

BY DR. C. C. MILLER.

On page 725 of Gleanings for 1898 I said, "I know it is a quite commonly accepted belief that bees left to themselves select larvæ too old for the best queens; but it is high time to lay such beliefs aside. The truth is, they don't make such mischoice; and if they did, such old larvæ would emerge as queens later than their younger sisters. A larva chosen at the time of weaning, at three days old, will emerge a perfect queen at an earlier date than any other larva either older or younger."

So many have taken me to task for saying that, and it has withal been done in so kindly a spirit, that it would be a real pleasure to say, if I could say it honestly, "Brethren, I was all wrong from top to bottom; didn't know a thing I was talking about, and I take it all back." Now, suppose we talk it all over in a dispassionate manner and see if you can't let me off without making me take back *every* thing I said, for I am sure I can rely on your goodness of heart not to want to humiliate me more than is absolutely necessary.

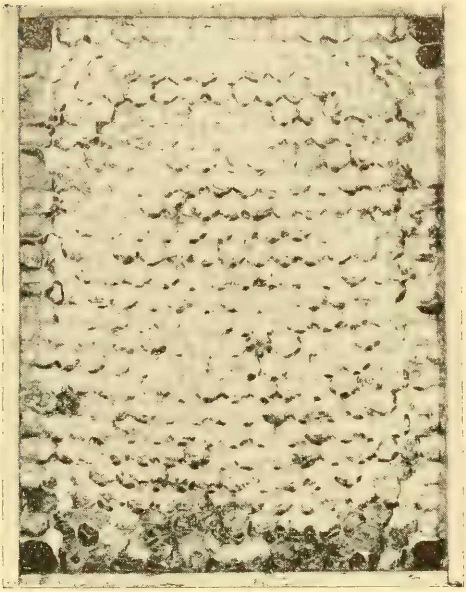
In the first place, haven't some if not all of you been reading into my article beliefs I never held? If some one who had never read what I had written should read the replies that have been made, I think he would be likely to understand that I had said something like this:

"If you take away a queen from a strong colony, and the bees start 20 queen-cells, and you let the 20 queens therein contained come to maturity, and give them to 20 colonies, the results will be as good as if you had reared the 20 queens strictly after the most approved style recommended by Doolittle." Now, friends, please, friends, I never said any thing of that kind—never thought any thing of that kind. If you had asked me what would be the comparison between such two lots of queens, I would have said, "Doolittle's 20 will be worth ever so much more than the other 20, and you couldn't get me to put the latter in 20 colonies if you'd pay me $20.00." Don't you think I'm as orthodox as you are on that point? And I think you'll not find any thing I said to conflict with such view.

Being satisfied on that point, I suppose you would like me to say that I indorse the venerable tradition that, when bees are suddenly deprived of a mother, they are in such haste to rear a successor that they select larvæ too old to make a good queen. In some cases I am glad to rise up before the hoary head, but not in this. That venerable tradition is a libel on the bees. I believe that in all cases a queenless colony when starting a queen-cell will choose the best material it has on hand. If it has nothing better it will try to make a queen out of a drone larva, but I don't think you'll ever find it trying to make a queen out of a drone larva when it has larvæ of the other kind. If it has nothing better on hand, it will use worker larvæ too old to be good, but I think you will never find it choosing such if it has younger on hand. I think I need not repeat what I said on page 725 to show that, if larvæ more or less than three days old should be chosen, they would be later emerging from their cells than those only three days old.

Some of you will now say to me, "But I have seen with my own eyes bees taking larvæ almost ready to be capped over, and trying to make queens out of them, and you have just said yourself that you wouldn't use the 20 queens selected by the bees if you were paid $20.00." That's all very true, my friend, but that doesn't militate against the fact that, when bees make the selection, they select the best they have on hand. The trouble on your part is that you have lost sight of another fact that plays an important part. Nature is prodigal in her provisions. She is not satisfied with a single blossom for each intended apple, but millions of blossoms bloom without fruit. For every drone needed, thousands are reared. When a queen is needed, a number are reared. Not content with what cells are started in the first place, the bees start others later on. In this latter case, if they have nothing better on hand, they must perforce use larvæ too old.

Years ago, impressed with the importance of having larvæ not too old, I thought I'd make a sure thing of it by taking away every thing in the way of brood, and giving a limited number of eggs from a choice colony. I reared some fine queens, but I was puzzled and chagrined to find that some were abortive affairs of the most miserable character. A little observation showed me that only part of the cells were started in the first place, the remainder being treated as worker larvæ, and after they had become too old as worker larvæ the bees wanted to start some more queen-cells, and these too old larvæ were the best they had.



FANCY COMB HONEY, ACCORDING TO NIVER'S GRADING-RULES. SEE EDITORIALS.

Right here let me call your attention to a little kink in the Doolittle method, that you may not have thought of, and that kink gives the method great superiority. The cells are given as royal cells to begin with. They can not be treated as workers for a time and then turned into royal larvæ. The bees may empty the cells in some cases; but if they're fed at all they're fed royally, and fed so from the start. So if you are intending to use *all* the cells that are started, the Doolittle plan is away ahead.

On page 921 is an interesting article from R. C. Aikin, in which he gives the result of large observation. The editor seems to hope that the reading thereof will tend to convert me from the error of my ways. Why, my dear friend, don't those observations only confirm what I've said? His observations are such that he concludes that, when colonies are deprived of their queens, the majority start with larvæ "not over four days from the laying of the egg," and "that by far the larger per cent were reared from selections made inside of five days from the laying of the egg." That is, the larvæ were one or two days old. The earliest date at which he found queens emerging was ten days after unqueening. These cases were very rare, but you will see that they still allowed time for the larvæ to have been selected before they were weaned. (To the novice I may explain that worker larvæ are fed for the first three days on the same pap as the royal larvæ, and are then weaned and put on a coarser diet, while the royal larvæ are continued on the same food throughout.) The latest was 15 days after unqueening, in which case there is the possibility that the egg was laid not more than a day before the unqueening, and was never fed any thing but royal jelly. I suppose that Mr. Aikin means that these were the dates at which the first young queen in the colony emerged when all were left in the hive. If he had taken all the cells and put them separately in nuclei, I think he would have found some later than the 15th day, such having been chosen, not with the first lot, but later on.

Mr. Aikin says that in some cases all the cells appeared bad to him. Nothing strange about that. Unqueening by wholesale, some of the colonies would not be fit to rear good queens. The same colony that couldn't rear a queen worth saving in that way would not have reared a good queen from cells properly prepared by Doolittle himself.

TRANSPARENCY VIEW OF RASPBERRY HONEY. SEE EDITORIALS.

In passing I may refer to the identification of cells. I don't believe the man lives who can tell by looking at a single cell whether it was intended for swarming or supersedure. Mr. Aiken does not dispute this, but thinks he can decide from the lot. Very likely. He thinks pretty confidently he can tell whether a cell was built because the queen was suddenly removed or was built for swarming or supersedure. Friend Aikin, you can tell every time for sure. When you see a queen-cell right in the middle of a sheet of brood, you may know it's not for swarming or supersedure. If you can't tell in any other way, you can tear down the cells and see whether they are what the Germans call preconstructed or postconstructed. A cell for swarming is always preconstructed; that is, it is started from the very beginning, with the shape of a queen-cell. A postconstructed cell is one which is first started six-sided as a worker-cell, and that six-sided bottom part is always left, and you may know from that that there's no swarming or supersedure in the case.

I have read over carefully what I wrote on page 724, and I see nothing to change unless it be near the last, where I say, "In the hands of the common honey-producer, the best queens will be reared by allowing the bees their own way, and then, when the cells have been sealed in a strong colony, letting the nucleus or colony in which the queen is to be kept till laying have several cells from which to select." By that "best" I don't mean that such queens will be better than those reared by other queen-rearers' plans, for I had just said such were as good as the best; I simply put them in the "best" class, and meant none would be better. I ought also to have emphasized the words "letting the nucleus . . . . have *several* cells." The point is, that in the lot will be cells of the best kind, and also inferior ones, and by giving "several cells" you'll be pretty sure to give one of the best. Of course, in giving several cells you might select all poor ones. To make the matter entirely sure, all the cells would need to be used together.

It would have been better if I had before made some of the explanations I have here given. I am sorry I didn't. But as there was nothing about them but had been familiar for years, the necessity for mentioning them did not occur to me. Perhaps also I kept my gaze a little too closely fixed on the matter as it first started with Mr. Taylor challenging the answer I made in *American Bee Journal*, page 295. The question was, "Suppose at the height of the season you took away all brood except one frame with the queen, inserting in its place empty combs. Then, 48 hours after, take away the remaining frame of brood, queen and all. What kind of queens would you get?" I replied, "After scratching my head over that question, I'm rather inclined to reply that you'd get just about the same kind of queens you'd get if you took away the queen in the first place, leaving all the brood and bees. . . . . Now, doesn't it look rather reasonable to you that the bees will select what will make the best queens if you leave it entirely to them?" I was talking with that answer in view, and I see no reason now for changing the answer.

I think I have been misunderstood, and I hereby apologize for not trying to express myself more fully and clearly. Let me try to state what I believe. I believe if you take away a queen and use all the cells the bees in that colony start, you'll have a sorry lot of queens, taken as a whole; whereas by using the Doolittle plan you may have all of the best. But I firmly believe, and believe with all the believing that's in me, that if you take away a queen and leave all the cells for the bees to act their own sweet will, you'll have just as good a queen as would have been reared if the larva that produced that queen had been reared in that same colony in one of Doolittle's cell-cups after the most approved fashion. If enough of those cells are given to a nucleus to contain one or more of the best, you'll get just as good a queen as by the Doolittle plan. The professional queen-rearer can hardly afford to be so lavish of cells. The honey-producer with hundreds of cells to throw away may.

Marengo, Ill., Jan. 26.

[If I understand you, doctor, bees when left to themselves will rear good, bad, and indifferent queens; but as queens from old larvæ will hatch *later* than those from young larvæ, the latter will be on duty first, and make way with their rivals. All through nature there is a harmony that seems to work toward the "survival of the fittest."

Say, doctor, if you try to correct wrong notions, or prevent people from reading more into your lines than is actually expressed by them, you will have a hard job indeed. You have my hearty sympathy. For instance, even to this day some of my best friends are making out that I claim that plain sections will be better filled *because* the bee-space is on the fence rather than on the sections, and then proceed to knock such heresy into fine bits. It's easy—so easy—to set up a man of straw as a sample of the other fellow's manufacture, and then *pulverize* the very straws the creature is made of. It is useless to say that I never uttered such a heresy, as I have already disclaimed any such notion a number of times. —ED.]

ARTIFICIAL INCREASE.

The Subject Thoroughly Discussed.

BY W. W. SOMERFORD.

Artificial increase, or the formation of nuclei, as given on pages 260 and'61, April 1, has brought and is still bringing many questions. Whys and why nots are especially frequent in letters from beginners who do not seem, generally, to understand fully any method of increasing artificially their number of colonies. For the benefit of such readers I will again sketch over the subject of artificial increase, as I am doing some of it now myself. I increased at a place where I am starting an apiary, seven colonies, up to an even fifty, or seven from each hive that I had to begin with. The queens were all removed from the seven parent colonies just eleven days before dividing, and were carried to other apiaries, and used—the best ones, I mean. The old or apparently feeble ones were killed. After remaining queenless eleven days I divided the seven colonies into 43 hives, between five and seven o'clock. I began dividing at exactly five o'clock; and at seven, instead of having 7 strong colonies I had exactly 50 divisions, with from two to four combs each, and they well covered with bees, and each hive had in it from two to six cells, almost ready to hatch. By the way, one of the seven colonies from which the queens were removed had hatching queens, and into a number of the divisions I put Dr. Miller's "pulled queens."

The parent colonies thus divided were in two-story ten-frame Dovetailed hives, and had about ten frames of brood each, being, a part of it, in the upper stories, and honey too. Each hive was well filled with it, so the divisions have a chance to do pretty well, even if the honey-flow should cease at once.

In dividing I left no brood in the hive that occupies the parent location. I gave each of them only a bunch of queen-cells, leaving the entrances open on each hive that occupies the parent location, and has in it the emptiest combs and no brood, only queen-cells ready to hatch. The brood is all given to the hives that occupy new locations; for the hives on parent stands will get plenty of bees if only a few empty combs are left them with only queen-cells. The dividing is done late in the evening to avoid the commotion the returning bees are sure to make around each parent stand. The divisions, or new hives, are put where they are to remain, and the entrances stopped with moss or leaves. Green basswood leaves are excellent where no moss is convenient, and are sure to let the bees out by the third day. If the entrances are not thus closed the old bees in each new hive are liable to stampede during the commotion caused by the returning bees around the parent colonies; and in a stampede where the entrance of a new colony is left open to begin with I have seen every bee take wing that could fly, and pull for the old homestead; and I have even seen the bees that were too young and weak to fly crawl out of the hive and into the grass by the hundred, only to perish, and thus destroy even the prospect of a new colony, in only a few minutes after being divided; but by closing the entrance with any thing that the bees can gnaw through in from two to four days, the probability or possibility of bees returning to an extent sufficient to injure the strength of a division is entirely removed, thus insuring perfect success in making increase by artificial means, even in an out-apiary where it can not be visited for a week.

Quite a number ask if screening would be better than moss or leaves. Screening with wire cloth will do to perfection where a person is on hand the second or third night to open the entrance of each hive; but if divisions are being made in out-apiaries, then what? As a bee-keeper can not afford to be running extra trips to out-apiaries at sundown, it is much nicer and more convenient to have them liberate themselves. Besides, leaves, grass, and moss cost nothing, and don't have to be put away when used, and answer just as well if not better. The only cases that I have had where bees failed to gnaw out in time were when a cold wave came just after dividing, and it remained *very cool* for a week or so—so cold that the bees would remain in a cluster, and not get to work to make an opening. But as it is not safe nor advisable to try to make increase too early in the spring, stuffing the entrances is all right.

I will say for Mr. Agie A. Young, of Little Rock, whose questions I now have, through the kindness of the editor, that the old queen has to be caged in order to *get cells* built, so as to have brood and cells in the combs that are used in the divisions.

The old queen can be left in the hive she has always occupied, but must first be put into an ordinary shipping-cage; that is, if you want to save her. If old, kill her at once, as the colony will build from ten to forty cells, if strong enough to make divisions of, and young queens are always preferable to old ones. Some advocate buying queens; but unless you have plenty of money, I say don't do it. If you do buy, be sure to buy of a man of some years' standing, and at least some sort of reputation as a queen-breeder, for I write from experience. I have bought queens by the dozen from Italy, as well as from various home breeders of but little experience; some of the queens were all right, but the races of bees—oh, my! I have had two of Bingham's smokers that did not even faze them—could not be subdued. As soon as the smoke cleared so that they could see me I'd have to run; and the idea of a professional bee-man running from his bees! Blacks beat running from mongrel races.

Navasota, Texas.

BEES AND FRUIT.

The Importance of Some Bees in the Vicinity of Anybody who Grows Fruit, Especially Cherries: some Strong Testimony.

BY F. L. MORRILL.

Mr. Root:—Of course I want my subscription to GLEANINGS renewed, as I could not well get along without it. It has been of more help to me than I can tell you of since I have been reading it.

Although Suisun Valley is a very good place to raise bees, what honey my bees have made is of a dark color, and does not command the highest market price in San Francisco. Four years ago, when I rented one of the orchards which I am now running, the owners had about a dozen swarms of bees in box hives, and took no care of them at all except to hive the swarms in more box hives. He managed to keep about the same number of colonies, as the bee-moth, which is very bad here, cleaned out about as many colonies as he managed to hive every year. He had a large cherry-orchard, and told me that for eight years he did not get a cherry. He was about to dig the trees up when some one advised him to try bees, which he did. The result was that, three or four years after he got the bees, he sold his cherry crop in Chicago and New York for about $4000 ; so you see his idea in keeping bees was only to fertilize the fruit-bloom. At that time it seemed to me that, if there was a bee anywhere in the orchard, it would sting me; but since I have studied their ways, and handled them some, I find they are not such little rascals as I once thought them to be. The owner of these bees told me I might have them if I would take care of them and keep them on the ranch. I informed him that I had no use for any kind of insect that had such a sharp way of doing business. One day, however, I was watching a neighbor working with some bees (it is needless to say I was inside of a building, and was watching every bee that came toward the building), and I became interested and borrowed his A B C of Bee Culture; became more interested, made some hives, and transferred the bees, and now have sixty colonies in eight-frame Langstroth hives of my own make. I shall increase to 100 stocks, as I have 140 acres of trees for them to work on. Although this is one of the most fertile valleys in the world, the drouth last year was very hard on fruit-trees. The fruit did not mature last year, neither did the buds for this year's crop; so for two years now the orchardists have not made their expenses. A large percentage of the white varieties of cherry-trees have died, owing to last year's drouth. In digging wells to irrigate we have found the soil in some localities as dry as powder to a depth of fifteen feet.

By the way, we have a gas-engine out here that generates gas and runs on crude petroleum that costs only five cents per gallon, and a gallon will go as far as a gallon of gasoline in other makes of engines. I speak of this because I have seen none advertised in Eastern papers.

I have found that honey gathered from fruit-bloom is bitter to the taste. There is a wild peavine that grows here that the bees gather honey from all summer and fall, and the honey, when first gathered, is as blue as a navy shirt.

Suisun, Cal., April 24.

COMB AND EXTRACTED HONEY.

Producing Both at the Same Time on the Same Hive; the Shallow Extracting-super for Starting Bees into the Sections.

BY LOUIS SCHOLL.

The article in April 15th GLEANINGS, by Mrs. Barber, in regard to producing comb and extracted honey, was read with great interest; and as Mrs. B. asks others to try *her* plan, and report, I will endeavor to tell how I conceived the idea of using shallow half-depth extracting supers on all colonies intended to be run for comb (section) honey.

All of my hives that I have been using were the 1½-story eight-frame Dovetailed, with shallow extracting-supers. These are left on the hive during the winter—in fact, all the year round except on those colonies which are well started in their section-supers during the honey-flow, as the shallow-frame supers are generally moved to other colonies run for extracted honey exclusively. These are mostly colonies which are too slow for comb honey, and often these are the weaker colonies in the yard.

Well, to return. In 1895 we had a sudden flow from mesquite; and as I had only one super and a set of frames to each colony they were soon filled with honey before any was ripe enough to be extracted. As the bees needed more room I could do nothing else than to get all of my sections ready, and nail up some supers, using old fence boards and what all. These were put *between* the shallow super and the brood-nest ; and how the bees did fill those sections!

I did not care to produce a very great amount of section honey, so I selected several of my best and strongest colonies to produce the amount wanted; but after putting the section-supers on they were very slow to enter them.

One or two did not go up at all, and not one of these colonies entered the supers until the brood-nest was completely filled with honey. As bees are loath to store honey above sealed stores, they would loaf and hang all over the front of the hive, while the other colonies produced a far greater amount of both comb and extracted honey. So it will be plainly seen that this idea was a good one, and it has been practiced ever since that time.

I have been busy this week in placing the comb-honey supers *between* the shallow-frame supers (which are about half full) and the brood-nest. The mesquite flow is now on; and if the weather continues favorable, those supers will soon be full.

To conclude, I will give here a copy of my report for 1897 in the *Southland Queen*, January, 1898 :

"I have the eight-frame Dovetailed hives, and use shallow extracting-supers. As I run my bees for extracted and comb honey I first let them get started in the shallow super, and then I put a super filled with sections in between."

"If you run some colonies for comb honey, and treat them in this way, the bees seem to try to see how quickly they can fill the sections between the super and brood-nest."

After considering all these most important points on the production of section honey, as, bees too slow to enter section-supers, too much honey in the brood-chamber, and that bees are quite loath not to store surplus honey above the sealed honey in the brood-frames, and a great many other points worthy of the fullest consideration, I have now on trial in my apiary a sectional hive consisting of a series of cases, brood-cases, and section-cases all interchangeable, by the use of which I believe we can overcome a great many of these difficulties. After putting this hive to a thorough trial we will gladly say more about it in some future articles.

Hunter, Tex., April, 1899.

[Once get the bees started, and they will go right on with the work. The principle of using an extracting-super to get the bees into the notion of going above to work is all right. It worked nicely for us last summer.—ED.]

RAMBLE 168.

In Tacoma.

BY RAMBLER.

The Phenecie Bros. are not unknown to bee-keeping fame in Washington. They have a little factory here in Tacoma for the manufacture of supplies, and also have an apiary. I believe they published a few numbers of a bee-journal; but it seems that no portion of the Pacific Coast, either north or south, has a class of bee-keepers that will sustain a journal devoted to their interests, therefore this journal was suspended, and is in that painful condition to this day.

Upon the first call that Mr. Littooy and I made at the factory we found no one within. It was election day, and the proprietors were serving their country at the polls. I called twice afterward, and at all times the same silence reigned, and I did not see the gentlemen while in Tacoma.

Mr. W. H. Pallies is another bee-keeper of whom I had some knowledge through correspondence and trade, and I felt quite well acquainted with him even before I met him. Mr. Pallies lives quite a little distance out of the city, in a suburb quarter. It was extremely easy to find his residence under the guidance of Mr. Littooy. Of course it rained somewhat that forenoon, and we dispensed with the wheels, and took the electric-car line which runs past the gentleman's door. Our call was made the day after the election; and although we found Mr. Pallies at home in the tender care of his family, he was considerably used up from the arduous duties of election day. I understood him to say that he was obliged to sit on a board all day and nearly all night. Of course, such treatment would use almost anybody up.

Mr. Pallies has about 100 colonies of bees. He is one of the pioneer bee-keepers of this portion of Washington. He also uses the Heddon hive; but through the discussions of the virtues of large hives in the bee-journals he is getting somewhat estranged from it — so much so, at least, that he is experimenting with a few of the regular Dadant twelve-frame hives. His experiments so far give him a favorable opinion of the large hive. He says that a swarm from an ordinary eight-frame hive is not large enough to fill one of these big hives, and it takes them about a year to get thoroughly to going; but when they do get to going, when one of these big hives casts a swarm it is so large it will fill a hive of like size and fill it rapidly with honey. In this case like begets like. He is quite sure that a colony in one of these big hives is not so liable to spring-dwindle as they are in a smaller hive.

Mr. Littooy and I could not be convinced that any hive is better than the Heddon; and we were firm in our belief that any thing anybody else can do with a hive we can do with the Heddon, and more too.

Mr. Pallies seems to be a careful experimenter, and I have no doubt he will learn the best way to operate his bees, and in an eminently satisfactory way to Mr. Pallies. He sells all of his honey in his home market, and to private customers, and sometimes has to send out of the State for honey. The grocers here as well as in other coast towns have a prejudice against California honey, for such mixtures have been sent here from San Francisco that, when sold to the consumer, they would bring them back to the grocer.

Mr. Pallies related his investigations into a San Francisco firm which advertised and sold outfits for the manufacture of artificial honey. The main ingredient for this mixture was a syrup made from boiled artichokes. The syrup is white and tasteless. Cornstalks were then ground in a sorghum-mill, and the resulting syrup along with glucose, was introduced to give color and sweetness. To five gallons of the above mixture one quart of honey was added to give a honey flavor. The entire cost of the outfit was $200. A very plausible circular extolled the mixture as in every way equal if not superior to bees' honey, and the profits from its sale were stated to be enormous. The company made their profits from the sale of the outfit, and cared but little whether the mixture was of use or not. Although such mixtures were put upon the market several years ago, the effect still lingers.

W. H. PALLIES' APIARY AND HONEY-HOUSE.

We hear much about the honey markets of Europe, and that the consumer prefers his extracted honey in the candied state, for he has been educated in the right way, and knows how to choose the pure honey. On the contrary, our consumer has been educated by the schemer; and when pure honey is offered for sale there is a suspicion that there is a Yankee trick behind it; and is it not a fact that such schemes are worked upon the people of this more than of any other country? and when they are tried in other countries they come to grief through more stringent national laws. The very low price for honey within the past few years is the only effective remedy in this country. The profits now will hardly warrant extensive adulteration.

I present a small photo of Mr. Pallies' apiary and shop. The latter is a combination affair where bee-fixtures are kept, poultry housed, and Belgian hares bred for market. Mr. Pallies seems to take considerable pride in this species of stock, and he has some fine and valuable specimens on hand.

"If you had only given us information that you were coming," said he, "we would have had Belgian hares for dinner." That is what we often lose by dropping in upon a family unawares; but we had a dinner fit for a king, for all that. Mrs. Pallies and her daughter are evidently experts in that line. Besides the bees, poultry, and Belgian hares, Mr. Pallies has a small fruit-ranch devoted to the raising of small fruits. The soil here seems to be very productive; and, having the necessary humidity, every thing in the vegetable and fruit line makes a rapid growth. Real estate is another factor in the hands of Mr. P., and I have no doubt that he could locate any person desiring to settle in this wonderful country.

The bee men around the city of Tacoma, in the first flush of their enthusiasm, a few years ago, organized a bee-keepers' association. Two meetings were held, and the various questions were so thoroughly discussed and settled that they have had no need of an association since, and it is in the same condition as the Pacific-coast bee-journals — suspended.

Mr. Pallies is greatly interested in the pure-food movement, and to the women of Tacoma is to be accredited the organization of the first and only State society in the United States having for its object the encouragement of patronage of home industry. The organization pledges its members to patronize home products whenever possible. A trade-mark is applied to the label of home products found worthy of support, to distinguish them from the undeserving. Several branch societies are organized throughout the State. Testing committees report on the merits of the product. For instance, honey that bears the trade-mark of the society can be accepted as absolutely pure. If every State would give more attention to these matters, which are vital to health and comfort, there would be fewer doctor-bills to pay.

My two days' stop in Tacoma seemed very pleasant when basking in the smiles and conversation of the bee-keepers in their homes; but when outdoors there was a certain sadness in the air; for if the clouds were not weeping they were all ready to. I could hardly understand how the people generally could keep so cheerful. I suppose it is all in getting used to such a condition of the weather.

The next morning I turned my face to the north again, and toward the city of Seattle. For conveyance I went aboard the little steamer Sentinel, and had a delightful run of 26 miles up the sound. It was cool and cloudy, and a mackintosh was necessary for comfort. My wheel rested comfortably in one of the row-boats on the upper deck; and on the lee and warm side of the large smoke-funnel two Indians crouched for comfort.

In the little cabin below, there were about 20 people of both sexes and of various nationalities, and with us an Indian family. I was informed that this Indian owned a large ranch in Eastern Washington; and from the smart and well-dressed appearance of himself, wife, son, and daughter, he was evidently prospering. The daughter, of about 25 summers, attracted my attention, for she was elegantly attired in a rich magenta-colored silk dress, and wore as nicely befeathered a hat, and as jauntily, as any white girl, and she was reading the daily paper.

The Indian reservation is probably the chief factor in civilizing this Indian, or certainly his daughter, for the Indian children are all gathered into the reservations for training and education. The one I visited near Tacoma was populated with more children than adults, and the result is civilized Indians. One of our leading generals once said that "the only good Indian is a dead one." That would be a heartless remark applied to the family on this boat, for here a good Indian is a civilized Indian, a tiller of the soil, a producer, a peaceable man, and working in harmony with his white brother. I should also dislike to hear the word "squaw" applied to a civilized Indian maiden, like this one for instance. They have outgrown that low-down name, and certainly deserve to be treated with polite consideration.

I have not had much experience with the Indians; but in my various glimpses of them and their occupations, all the way from the Mexican line to this northern country, I have never found an Indian managing bees according to civilized methods. The Indians, especially in the southern country, bring in quite an amount of wax; but the method they practice is close to nature's way. They rob the many bee-caves and trees, feast on the honey, and sell the wax.

While I was reflecting upon this matter with this Indian family before me, I had an idea that there was a good opening for some good missionary work with the Indians in the direction of bee-keeping. In fact, I had just made up my mind to take up the work myself, and commence upon this Indian family; but my resolution was suddenly shaken by the boat running up to the wharf at Seattle, and all was confusion. Our little group of passengers went their various ways, and I no more saw the lovely Indian maiden.

* * *

ANOTHER RAMBLER.

In the Land of the Canebrake and the Cotton-fields.

BY CARRIE BELLE ROOT.

[While Miss Carrie was at school in Oberlin she became acquainted with a young lady whose home is in Moorehead, Miss.; and said young lady took her down to her southern home during vacation time. Of course, Miss Carrie has been obliged to turn over the subscription-list, temporarily, to other hands, and she has, by invitation, given us an account of her rambles.—A. I. R.]

Away down south, not far from the Mississippi River, there is a small village divided by a pretty little bayou into two parts. On one side of this bayou is the darky settlement. The church is the first thing which greets our eyes, and around this, in picturesque confusion, the little whitewashed cabins of the colored people are clustered. A few steps further on is the Almeda Gardner A. M. A. school for colored girls. On the opposite side of this bayou is the one store and postoffice, the new hotel, and three or four houses belonging to the white people. It would be useless to bring a bicycle with the intention of riding, nor even a carriage, to the town, for the roads are not as yet in condition to admit of that mode of traveling. Every one, young and old, rides horseback, and it is great fun for a party, mounted on steeds of all conditions and sorts, to start off in the cool of the day for a horseback ride. Riding down south is much different from the riding up north, and far more pleasant.

One afternoon, about five o'clock, a small party of us started, the girls dressed in the manner of the country, hair braided down the back, and hats off, for we did not care to sow a crop of hats and hairpins in the Moorhead bayous and forests. We rode north beside the railroad track until we came to the long pile bridge. Here we crossed the aforesaid bayou, and found ourselves in the woods. Soon our clear sailing apparently ended, for we came to a growth of cane growing much higher than our heads; but the horses, nothing daunted, turned into it and we found a narrow path just wide enough for us to ride through, single file. Within it was cool and shady, for the cane grew so thick that no glimmer of sunlight came through. The head horse started on a gallop, following the winding path in and out, and, of course, all the other horses caught the inspiration. Even my little pony, Dexter, at the end of the procession, was unwilling to be left behind; for as soon as he saw the tail of the last horse vanishing among the canebrake he pricked up his little ears, and off he started after the rest. Often, branches from the larger trees would hang over our path, and it became very exciting to see who would get through with least number of eyes scratched out.

All good things come to an end, so did our path through the cane; for we came out of it into the open woods; and, finding the trail muddy and wet from recent rains, we turned our horses aside and let them make paths for themselves through the thick underbrush and tall trees. Again we had to be careful, for I found that, while I was admiring the beauty of the scenery on the right side, the pony would walk too close to a tree on the left, and, as a natural result, the tree and I would find ourselves in too close contact for (my) personal comfort. Once, as Dexter was bravely pushing his way through, a small sapling flew back and knocked one of my feet out of the stirrup, and gave the other a sharp rap which did not feel very comfortable for a minute. Fallen trees often lay across our path, but it did not seem to occur to the horses to go around them. They would calmly pick up their feet and step over; or if the log looked a little large, Dexter, without stopping to give warning, would jump it.

On the day in question our party went as far as we could without encountering too great obstacles, then turned our horses' heads toward home again. We all looked forward to our return ride through the cane, and it was even more fun than the first time. The country seemed so wild and unbroken that it was a pleasure to ride through it, for new scenes and new obstacles were constantly appearing before us. Rattlesnakes are said to be quite common in these parts, but we have not encountered any as yet.

We arrived home about half-past six, bringing with us as a trophy of our ride nothing but violets and a big appetite apiece.

ANSWERS TO SEASONABLE QUESTIONS BY G. M. DOOLITTLE.

ARE WE GOING AGAINST NATURE IN WORKING FOR COMB HONEY?

Question.—Is it not against the very nature of the bees to have so many traps by the way of separators, T tins, queen-excluders, etc., in the production of comb honey? and do not these things lessen our yield materially, and place the bees to a great disadvantage above what they were with the large open 15-pound boxes our fathers used to have their honey stored in?

Answer.—When I first began bee-keeping comb honey was not put up as at the present day, as a part of the boxes used were made to hold 15 pounds, as our questioner hints at, while the smallest boxes then in use in this locality held fully six pounds. Some of these had glass sides while others had only a small piece of glass over an auger-hole, so that the owner of the bees could see through this glass to tell when the combs were completed, or when the honey was ready to take off; for, when these combs were sealed next the glass, the whole of those in the box were quite apt to be so, as a general rule. In these boxes we frequently found both brood and pollen, especially when any box was filled from white clover, even with a hive as large as 2000 cubic inches, and many wondered why the queen would go above to lay, when there was apparently plenty of room for her below. The reason for this, as I look at it, is that new comb is being built above, which is generally of the drone size of cells, where the bees have their own way in building it, as was the case then, which, with the desire of the queen to be where the bees are the most active, causes her to go into the surplus arrangement to lay. Some seem to think that this trouble with brood and pollen in the surplus arrangement of the hive is something that comes by our working against nature in these latter days, caused by the contraction of the brood-chamber being done by many of our leading apiarists during the past score of years; but I believe this to be a wrong idea, for I found much more brood and pollen in my comb honey 25 or 30 years ago, before I ever contracted any hive, than I have since, where no queen-excluding honey-board was used.

As time passed on, the thought originated in some enterprising bee-keepers' head that honey would sell better if stored in still smaller boxes than those weighing 6 pounds, so we soon had the 4-pound and next the 3-pound box. This box was used in the same way as its predecessors had been; namely, with glass sides, while it was made long enough to hold only one comb, which comb was about 2¼ inches thick when completed. With this box I had very little success, for the bees seemed very loath to work in it; and when they did so, they would frequently try to put in three combs, which put it in very poor shape for market. For this reason I decided that it was not in accord with "nature" for the bees to be cut up into so little clusters, and have their comb as thick as 2¼ inches. Consequently I went back to the six pound box again, leaving it to others to work the smaller ones as they pleased.

When the two-pound sections with separators were introduced I considered them as being still worse than any preceding them, for the bees were divided into still smaller clusters than before, or at least that was the way I reasoned. One night, while lying awake thinking on the subject, I believed that I saw the difference between this way of using small boxes and the old way, where glass was used on both sides of the box; for in using separators the bees were not, properly speaking, divided into little clusters at all, but virtually had one box of the size given by the number of sections used in one tier, which was generally nearly twice the amount of one six-pound box; for as the tin separators did not come within ⅜ inch of either the bottom or the top of the section, the bees and warmed air could pass from one to the other just the same as if no tin were there, to all intents and purposes. But there was so small an entrance that I feared this would be a hindrance to the bees coming up in the sections to work to advantage; and in order to overcome this I left the bottom off all the sections first used, so that I might not meet with a partial failure, as I had done with the three-pound box. My yield of honey from colonies so fixed was greater that fall than from the hives worked in the old way, as an average; but I found that, in leaving the bottoms off the sections, I had gotten into a job which I did not care to go through with again; and, besides, in using the tin separators so narrow that ⅜ inch was left both above and below them, I had a bad job here also, for the bees bulged the combs so badly at both bottom and top they could not well be crated.

Although still fearful that I might lessen the yield of honey by putting on the bottoms of the sections and widening the tin to the separators, yet I resolved to try; so the next season found me putting sections on a few hives, very nearly the same as I use them now, all the difference being that I then used a two-pound section, while I use the one-pound now. The rest of the apiary was worked with the six-pound boxes as before. At the end of that season I found that the colonies having the sections with separators gave me the largest yield again, and the combs in these sections were simply perfect, or as nearly so as any we have seen pictured within the past year, while many of those in the larger boxes were far from being so. The entrance to the sections also seemed ample, and by a little figuring I soon saw that the fourth-inch space between each section was greater as a whole than the entrance given to the six-pound box. When the next season came, I worked about half of my bees with sections and separators, and the other half with the six-pound boxes, thus using caution when starting out on something outside of the beaten path which I had trodden in the past, as I always think it advisable to do.

The result of that season proved the same as that of the seasons before, so that I then adopted sections entirely, and firmly believe that such an arrangement does not inconvenience the bees in the least, over what they would be in a box of the same capacity without separators, or with separators with any kind of perforation in them. When the queen-excluding honey-boards came before the public I tried them slowly, as I did the sections with separators, using more and more each year, till, so far as I am enabled to detect, I can say that none of these things cause any inconvenience to the bees, or in the least decrease our crop of comb honey. Only in this way of proving things can any one fully say what is good and what is not. The old injunction, "Prove all things, hold fast to that which is good," is as valuable to-day as it ever was.

HEADS OF GRAIN FROM DIFFERENT FIELDS

BEE-PARALYSIS.

Dr. C. C. Miller:—I have some disease among my bees that seems to be very bad. Will you please to give advice through GLEANINGS as to what it is? They crawl or are dragged out of the hive by the well bees, and have a shiny appearance, as if dropped in grease; a quivering motion; live a few hours, become swollen, and die. Is the disease contagious? I have united it twice, and the well hives became diseased. Would you recommend burning the hive, bees, and combs? I have changed queens three times

Dadeville, Mo., May 8. F. D. MCMURRY.

[Dr. Miller replies:]

If you will look up back numbers of GLEANINGS, and read what has been said about the nameless disease, or bee-paralysis, you will find about all that is known on the subject. To be sure, that isn't all that might be desired; for although a number of cures have been recommended as sure by different persons, there seem as yet to be no means of treatment that have proved efficient in the hands of the many.

As to contagiousness, it certainly is not very contagious, for I've had one or a few colonies to be affected throughout the whole season without having others affected. As far north as Northern Illinois it is hardly worth paying any attention to; but in the far South it is a very serious matter. It is hardly advisable for you to destroy the affected colonies. Quite possibly the disease will disappear of itself, as it has with me. C. C. MILLER.

Marengo, Ill.

[But the disease, judging from reports, is very contagious in the South, is it not, doctor? —ED.]

BEE-KEEPERS IN THE LEGISLATURE.

I have just read with interest the experience of the New York bee-keepers with their legislature, relative to the spraying-bill. I had the same experience in our legislature. Our bill was introduced by the horticulturist. I said but little until the bill came up for its third reading, then I introduced an amendment making the penalty the same for spraying while in bloom as the bill provided for not spraying at all. The amendment was adopted, and the bill passed the house as amended. I then followed it to the senate, where my amendment was concurred in, and it is now a law upon our statute-books.

We have not been so fortunate this winter with our foul-brood bill. It was referred to the committee on ways and means, who refused to report it out, so the bill is dead in the committee room. I think we need one or two good live bee-keepers in every legislature. I shall see that this foul-brood bill is introduced at every session of our legislature until it passes. I think the bee-keepers of the State are more to blame than any one else for this failure. I doubt whether a dozen have written to Lansing in the interest of the bill.

GEORGE E. HILTON.

Fremont, Mich., May 19.

THOSE DARK RAYS.

What an age we live in! When are the wonders which startle the world to cease? Now comes the discoverer of "dark rays" (see page 355, GLEANINGS) such as enable the owl, cat, and other nocturnal prowlers, to see their prey. The prismatic rays and the X rays, in the realm of discovery, are in a total eclipse. It has been generally supposed that darkness indicated the absence of rays, and that the pupil of the eye expanded as the rays of light lessened, so as to take in, or gather together what there were, so that objects might be made visible, but we are told that the expansion of the pupil of the eye is for quite another purpose; viz., to take in a greater quantity of darkness, thus rendering objects discernible. Oh, my! Just shut your eyes, and think a moment. How much darkness tabby cat could get, even in the daytime, by shutting her eyes! Then where would poor mousie be? What's the use of expanding the pupil, even in the dark? Shut the eye; it'll be dark enough. Why, bees ought to do their best honey-gathering during the darkest nights. We sometimes hear it said that they have been known to gather honey, in some localities, during very bright moonlight nights; but mine have not made sufficient advancement in the use of "the rays of dark" to do even that; and for several reasons, which I might give, I hope they never will. W. M. WHITNEY.

Hospital, Ill.

A PLEA FOR THE KING BIRD.

I do not own a honey-bee and never did; but I like your paper, and I love God's creatures, hence this article. On page 354 A. J. Wright makes a common but most unjustifiable attack on the king bird as an enemy and destroyer of honey-bees. On page 233 of the Report of the Secretary of Agriculture for the year 1893 is given the food habits of the king bird. The specialists of the department analyzed the contents of 171 stomachs taken from king birds in nineteen different States, Canada, and the District of Columbia, six months being covered in collecting the same. Only 14 stomachs contained any traces of the honey-bee, and there was a total of only *fifty* bees found. Of these, 40 were drones, 4 were workers, and 6 were too fragmentary to identify. Thus only one bird in 12 caught bees, of which only 10 per cent were workers. In several instances birds were shot near bee-hives, but no trace of bees were found in their stomachs. Before condemning any of God's creatures, be sure we are right, then go ahead. W. H. SEELY.

Howell, Mich., May 6.

[But I have seen king birds catch bees in our apiary at the rate of about one a minute. They caught the bees in the air, then would alight on the barn near by and then swallow them. One bird would catch perhaps a dozen in this way at a time.

At one other time we lost a good many queens during the queen-rearing season, and there were king birds that made a regular business of being on hand in the morning. I did not see them catch bees this time; but I shot several of the birds, and after that the young queens did not "come up missing" so often. King birds, like man-eating tigers, acquire a liking for a certain kind of dietary; and if the birds are making frequent visits to the apiary you may be sure they are there for the bees. As they are caught on the wing, naturally the largest and the slowest of flight bees (the queens) would be the victims. The report you refer to only goes to show that the birds in question were not of the bee-eating kind.—ED.]

EDITORIAL
BY
E. R. ROOT

OUR apiarist, Mr. Wardell, is now raising queens successfully *a la* Doolittle, in the brood-nest, with a laying queen attending to her duties in the hive. Cell-raising has been going on right along during this spell of cool weather we have been having for the last eight or ten days, apparently, without let or hindrance.

BEFORE the next issue is out the honey season in most localities will have begun. The locusts are just going out, and white clover is just beginning to show its beautiful heads here and there. This would have been an ideal spring except for the fact that it has generally been cool for the last ten days — that is, from the 17th to the 27th. While winter losses have been heavy, most bee-keepers are hopeful because the conditions have been fairly favorable.

STRANGELY enough, the queen-breeders of the South have this spring had almost no advantage over those of the North. During March and the fore part of April the weather was about as unfavorable for queen-rearing in the southern portions of our country as in the northern; and when the weather did open up warm and balmy, the queen-breeders in the North could begin just as soon. These thoughts came to me when we tried to get queens from the South this spring. The almost universal complaint seemed to be that the weather had been too unfavorable in the South.

T. F. BINGHAM, of Farwell, Mich., the smoker man, lost 80 colonies of bees on the 11th by a spark from the railroad, which, presumably, was close at hand. A hive of bees with its dry lumber, with its combs that burn almost like tar, makes good material for a fire; and if the grass caught fire near one hive it might be the means of spreading it to every other colony in the apiary. When I visited W. L. Coggshall we stopped at one yard where two colonies were literally burned clean, leaving nothing but the tin roofs, the nails, and the ashes, and it was a wonder it did not take the whole apiary. This fire caught from a smoker.

THE HONEY OF APIS DORSATA.

ATTENTION is called to the fact in the article elsewhere on *Apis dorsata*, that the honey that is stored in combs built by these bees in open air is apt to sour. It is well known that, in an ordinary hive, bees get up an artificial current that carries on the process of evaporation very rapidly. But such artificial currents can scarcely be secured in case of a unicomb hanging in the open air on the limb of a tree. While India has a very hot climate, W. P., at my elbow, says it is very moist for the greater part of the year at least. This, no doubt, would account in part for the thinness of the honey and for its tendency to ferment.

SECTION-CLEANING MACHINES.

WE have here one of the latest Aspinwall section-cleaners. It is a foot-power machine having a mandrel at the top, and in convenient reach of the operator. On the end of this mandrel is secured a metal cylinder about 2 inches in diameter and 8 inches long. At equal intervals are slots cut lengthwise of this cylinder, and in these slots are fitted scraping-knives that project out about like the bit of a plane through the face of the block.

Unlike the ordinary sandpaper machine this does not clog with propolis. It does the work rapidly, but does not, to my notion, do as nice a job as an ordinary scraping-knife or sandpaper; but as it works so successfully with Mr. Aspinwall, I am free to acknowledge that I have not yet learned the knack of scraping with a machine of this kind. C. Davenport, in an article in the *Amer. Bee Journal*, tells of a series of interesting experiments with machine section-cleaners. Sandpaper, composition sand-wheels, emery wheels, and the like, he finds, fill up with propolis. He then adopted a "wooden roller about 2 inches in diameter," with "steel knives in these about ⅙ inch apart," projecting "about ⅐ inch above the wood," the knives being let into saw-kerfs. This cleaner, he said, "will remove propolis from sections very rapidly. It never clogs up, even if the glue is so soft that it is difficult to clean the sections by hand; though when the edges of the sections are held against it, care has to be taken or the knives will catch on the corners, and instantly tear the whole section to pieces."

I have just received word from Mr. J. A. Golden, of Reinersville, O., whose machine section-cleaner we illustrated on page 215 of this journal for last year. This makes use of a sand-belt; and, unlike the ordinary sandpaper, he says it does not clog up with propolis, but does the work rapidly and nicely. Mr. Golden writes that he now has the machine so perfected that any child can run it. The belt he uses is made of sand-cloth, about 4 inches wide, and runs on two pulleys that are geared up to give a good speed. The operation of cleaning is to lay the section on the belt, and the yielding surface, he says, does not mar or damage the edges of the section. I have asked him to send us the perfected machine for us to try, after which I will report in regard to it.

There is no question but the machine section-cleaner is bound to come, and those of our readers who are of a mechanical turn of mind, and have good tools, would do well to give this matter some attention. To save useless experiments I will say I believe the solid-disk sand-wheel is not a success, owing to the fact that it fills up with propolis; and why the sanded belt of Mr. Golden does not meet with the same difficulty I can not understand.

Both Mr. Aspinwall and Mr. Davenport have the right idea, but so far as I have experimented the knives do not make smooth work. The Aspinwall might be improved by putting in more knives—that is, make them only ⅙ inch apart, as recommended by Mr. Davenport. Such a mandrel could be very easily made.

APIS DORSATA HIVED BY A GLEANINGS CORRESPONDENT.

It is with no little pleasure that we publish elsewhere the result of the efforts on the part of a missionary who has succeeded, at least partially, in hiving and domesticating a colony of *Apis dorsata*. Now that Mr Rambo, our missionary correspondent, has formed the acquaintance of these bees, has found them gentle, and comparatively easy to handle, I feel certain that he will be able to demonstrate whether or not they can be confined in hives. If so, we will have a shipment of these bees *en route* to America in short order. In the mean time our soldier friends are probably "pulling the ropes" in the Philippines. If they meet with any degree of success we are bound to get the giant bees into the United States at a comparatively slight expense, or at an expense that will come within the reach of private enterprise.

FIRE AT THE HOME OF THE HONEY-BEES.

On the 18th of May we came very near losing our warehouse, its contents, and possibly our lumber, aggregating in value some $30,000 or $40,000, by a fire that originated from some electric wires. Of course, the lumber and building were insured, but the insurance would not begin to make up for delays to customers, and general disappointment all around. The fire started in an electric starting-box that is used to start a small electric motor that runs the elevator. This elevator is situated in the middle of the building; and the starting-box, which was on the floor, was right in the elevator-shaft. A boy happened to be passing by, and gave the alarm just in time; for a fire in the elevator-opening would, in all probability, soon have enveloped the whole building. Our night watchman and two or three of our packers who were working late that night put out the fire alone, while the rest of us were getting our big fire-pump, fire-hose, and every thing else in good working trim. As it was, the loss amounts to only $45.00, which was promptly paid by the insurance companies.

This building is the only one in the lot that is not equipped with automatic sprinklers, and in consequence the fire *might* have been serious if it had not been extinguished when it was.

DIAGNOSING FOUL BROOD WITH A PICTURE; SEE PAGE 425.

In this issue I take pleasure in presenting a characteristic and accurate representation of a foul-brood comb. This specimen was photographed by Thos. Wm. Cowan, and I obtained the loan of the picture long enough from W. Z. Hutchinson to take off a half-tone.

It is impossible to describe, by ordinary language, foul brood so that it will not be confused with dead brood, and other forms of unsealed or partly sealed brood that are perfectly normal and healthy. For instance, the bees have a way of leaving some of their brood in hot weather unsealed for a short time. The hole will be drawn up to a small opening, and a beginner, or one not familiar with the disease, might imagine that these pinholes represented "something awful." But the pinholes in *real* foul brood are irregular and jagged, as shown in the illustration on page 425. The larva is shrunken, and of a dark coffee color; and the cappings of the dead brood are somewhat sunken, and have a sort of greasy look. If any one has in his apiary specimens of brood like the one shown in this illustration, accompanied with the other characteristics named, he can set it down as a fact, probably, that he has genuine foul brood.

If I had combs as badly diseased as the one shown in the illustration I would burn them at night if possible, and then bury the ashes below the reach of a plow or spade. In the light of our present knowledge of the difficulty of killing the spores of this enemy at a boiling temperature, I would never think of extracting foul broody honey. I would count it as profit and loss, and consign it all to the bonfire, combs and all.

Since our last issue there has been some inquiry as to where to get naphthol beta and how to dilute the same so that it can be used in the syrup fed to the bees. The article can be obtained at most of the drugstores, at least; but if not, your druggist can get it for you. As to the matter of dilution, the following are directions recommended:

> For every pound of sugar used in making syrup or candy, dissolve three grains of naphthol beta in alcohol. Naphthol dissolves freely in alcohol, but it is insoluble in cold water. Pour the solution into the syrup, when sufficiently boiled and still hot.

There has been considerable call of late for the treatment recommended by Wm. McEvoy, foul-brood inspector for Canada. We have had for some little time a foul-brood pamphlet giving his method of treatment, which has proven to be so efficacious on the other side of the border line. This pamphlet will be sent to all subscribers asking for it who inclose two cents postage.

THE ADULTERATED-FOOD INVESTIGATION.

It seems that an adulterated-food investigation has been taking place at Chicago during the past month, closing on Friday, May 12. On that day the editor of the *American Bee Journal*, together with Secretary Moore and Vice-president Mrs. Stow, of the Chicago Bee-keepers' Association, appeared before the Senate inquiry committee to testify concerning the adulteration of honey as practiced in Chicago. Editor York testified that the adulteration of honey was "being carried on to an alarming extent;" that it was not the bee-keepers who were doing this, but the jobbers almost exclusively. The chief adulterant seemed to be glucose—an article that cost probably a cent a pound, while pure liquid honey was worth seven to eight cents; honey bought in the comb was always reliable, because there is no way for manufacturers to imitate it. The other witnesses corroborated Mr. York, and much good work was done. Mr. York, in his journal, commenting on this, says:

> It is the intention of the Senate committee to print all the testimony they may gather as to the adulteration of all kinds of food, and present it to Congress at its next session, and then doubtless an attempt will be made to enact a national adulteration law. We endeavored to impress upon the committee the urgent

need of a statutory law against all forms of adulteration, including honey, of course. We were glad of the opportunity to give the committee all the information we possibly could.

Mr. Moore and the writer gathered up about a dozen samples of honey—both adulterated and pure—which we placed before the committee. Prof. Wiley suggested that we forward them to his laboratory in Washington, where he would analyze them, and then report.

THE USE OF HONEY FOR FINE CAKES, CONFECTIONERY, ETC.

As our bakers are now using considerable quantities of honey in preparing certain fine goods, Ernest recently wrote to one of the leading establishments for samples of their goods wherein honey takes the place of sugar. Below is their reply:

> We are only too glad to comply with your request, and send you a few samples of our goods wherein honey is the important factor in the formula for making; besides, we make many more goods that have honey in them. We are sending you five varieties of cakes, in the formula for which honey is the principal factor; besides, it gives variety in flavor different from any other sweetenings, and it makes goods much lighter and finer in appearance. The names of the goods are as follows: Honey-jumbles, iced honey-cakes, frosted creams honey-bars, and honey cakes plain. We are on the increase every year in the use of honey in the manufacture of cakes.
>
> Mansfield, O., May 8. NATIONAL BISCUIT CO.

The above five kinds of honey-cakes were scattered around to be sampled among the children and grandchildren belonging to the Root Co., and I for one was agreeably surprised to find so much improvement in the last few years in this class of goods. Why, it is enough to make one hungry to look at the case of samples; and after you test them you decide they are fully as good as they look. For picnics, for an outing, or for lunch, I do not know how any thing can be nicer. These honey-cakes have the remarkable property of keeping almost any length of time, without a particle of injury. Some of our friends may remember that we sold barrels of them at the Ohio Centennial; and those that had been kept until they were two years old, to test this matter, were just exactly as good as those only a month old. Of course, they should be stored in some dry place; but when wanted for use, if you want them more moist put them where it is a little damper, or shut them up in a stone jar with a cover on, and they will soon become soft and velvety to the touch. Why, it actually makes me hungry to write about it, and it will not be dinner for several hours yet, either. If bee-keepers would take pains to introduce these goods it would help make an opening for large quantities of honey. I do not know on what terms the National Biscuit Co. send out sample cases like the one submitted to us; but I am sure they will make a favorable arrangement with those who wish to open up trade in these beautiful and toothsome goods. A. I. R.

GRADING BY PICTURES; GRADING BY PATTERNS.

WHEN I visited the home of the late Miles Morton, to whom I have referred as the gentleman who had used fences for so many years, if there was one subject I discussed a good deal with Mr. S. A. Niver, his brother-in-law, it was that of grading. When I came away I took samples of his "fancy" and also a sample of raspberry comb honey, the raspberry showing only when the honey was held up to bright light. I had these sections photographed.

Referring to the picture on page 393 in our issue for May 15 I said in a footnote that the fancy and the No. 1 were too near alike, and that there ought to be a greater difference. The illustration that I have shown in the first column on page 428, in this issue, represents one of Mr. Niver's fancy, taken from his *regular stock* of fancy. It will be noticed that it is well filled — better filled, indeed, than the fancy shown on page 393; but, as Mr. Niver said on that page, he believes in having the pattern sections a little *under* the grade which each pattern is to represent; or, to adopt his exact language, have "three pattern sections which represent the poorest allowed in each grade." Now, then, if a section is up for consideration that is poorer than No. 1 grade, it should be placed with the No. 2's, even if it is better than No. 2 pattern. If there is a section that is just a little *better* than No. 1, it should be called "No. 1." If it is not quite equal to the poorest, as shown by the No. 1, then it must be called No. 2. The particular section designated as "fancy" on page 428, in this issue, I should say was the best fancy. The one shown in this number and in our last issue would represent the extremes in point of filling allowed in "fancy." The cappings of the one shown in this issue are a little darker than they otherwise would be, except for the fact that the section was nearly a year old when photographed, and consequently had a little the appearance of being water-soaked; but it shows what might be called a well-filled section of the fancy.

If we were to adopt one more grade we might have a few cases of sections with all the cells sealed next to the wood, and these would be called "extra fancy." If commission men would pay more for such goods it would pay well to have a fourth grade. But Mr. Niver believes three grades are enough, and I am not sure but he is right.

The other section, showing the specimen of raspberry honey, is a rather poor one in point of color, although "fancy" in point of filling. When it was held up before the light the beautiful purple raspberry could be seen in it, presenting a very handsome appearance — an effect than can by no means be produced through the medium of the camera. I had hoped that it would show up a little better. As it is, it shows only how the bees placed the raspberry honey, calico fashion—or perhaps, more strictly speaking, raspberry juice. It goes to show that bees have a preference for putting honey of a kind in patches, rather than making a checker-board, as it were — a cell of one kind of honey and a cell of another kind side by side. Mr. Niver had quite a number of these beautiful sections; and when placed in a display-window, where the light could shine directly through, he said they would be taken up like hot cakes. They were a sort of novelty that the consumers wished to test.

OUR HOMES,

BY A. I. ROOT.

And they come to Jesus, and see him that was possessed with the devil, and had the legion, sitting, and clothed, and in his right mind.—MARK 5:15.

There has been no end of discussion in regard to this matter of demons, demonology, and being possessed of devils; and the general opinion seems to be nowadays that devils do not take possession of human beings as they did in olden time. In our text above we are told that the poor unfortunate, who had been possessed with a devil, or, rather, who possessed a legion of devils, was found sitting, and clothed, and in his right mind, and listening to the teachings of Jesus, who by his word had rebuked and cast out all the evil spirits; and, blessed be his holy name, he does, even at this present day and age, rebuke and cast out devils of every sort. By the way, I have been bantered a good deal because I believe in the existence of devils as well as in that of angels. Not only skeptics but professing Christians laugh at my "superstition," as they term it, in regard to the power of the evil one. Well, it seems to me in these latter days that, if certain people are not possessed with evil spirits, they are certainly possessed with something that may well frighten the humanitarian and the one who is hungering and thirsting after righteousness. As an illustration, within a year or two past a new phase of suicide has come in, and seems to be growing. I allude to the suicide who murders somebody before he kills himself. Some nice young woman refuses to marry a certain young man, perhaps because he is intemperate and dissolute. He urges his claim. Then his love for her, which he has been claiming has been as a consuming fire, turns in an instant to hate, and he murders the being he loved, or says he loved, more than he did any one else on earth. After this he shoots himself, or puts an end to his life in some other way.

It is not always a jilted suitor who becomes possessed with this kind of devil. We hear of it here and there in the family circle. The father and mother get into a wrangle over some trifling matter. Both, for the time being, become possessed with a devil—at least that is my decision after studying many cases of this sort. The father winds it up by shooting the dear wife and then putting an end to his own existence. My impression is, after having studied cases of this kind, that neither one of them had any particular grievance when they started into the little quarrel. I do not believe the husband thought of killing himself at all when he shot his wife. When he stopped to realize that the awful deed was really done, Satan seems to have whispered, "Better wind up the whole matter by putting yourself out of the world also. It is a miserable sort of world, anyhow." And before he has had time to reflect or think, he too is the victim of this devilish work.

For quite a while I was entertaining some hope because *woman*kind does not go to such lengths. But within a few days I have been appalled to notice that murder and suicide are getting a hold on women as well as men. Even *mothers* have murdered their children, and then put an end to their own existence. People who try to make it appear that it is not Satan's work say, "Why, the poor woman was crazy. She was no more responsible for the act than you and I." But, hold on, my friend. There is something in this work that, at least in my mind, throws out the excuse of insanity. *Anybody* is liable to become insane. But such things are comparatively few and far between—too few to admit of the explanation that two people accidentally became insane at the *same moment*. I allude to the double suicides. Why, it is almost getting to be the fashion for *two* (if that is not a proper word, supply a better one yourself) to commit suicide together. There are quite a few cases showing that man and wife talked the matter over, and deliberately decided to destroy themselves.

Within a few days the most horrible thing of this kind has come to light that anybody ever heard of so far as I know. A husband and wife somewhere out west had decided to commit suicide; but before doing so they proceeded to put to death their family of three or four children. Now, as if what I have been telling you were not enough to indicate that Satan himself had taken possession of this father and mother, the papers tell us something still more heart-rending. The neighbors heard the children's cries, broke into the house, and found the parents had wrapped them up, *saturated the wrapping with coal oil*, and then *set fire to them*. I decided once not to put any thing so horrible in print; and I do it now only because it is the strongest proof that both men and women do get possessed of devils, or of *a* devil, even in modern times, that I ever heard of. I think we may honestly say that such work is not only of the Devil, but that it is absolutely hellish. If only *one* of the parents did this we might excuse him on the ground that it was insanity; but how could two people both become insane at one and the same time? and how could both father and mother, under any circumstances, so far lose the natural instincts of the human race as to proceed deliberately to murder their own offspring, and in a way that fairly makes one's blood run cold to consider it? Please consider further that no laws can be passed to reach cases of this kind. You can not frighten a criminal who has determined in his own mind to commit suicide, because neither hanging nor electrocution would be any punishment for the very thing he had proposed to do without law. These murders and suicides that are going on together are *outside* of law, and exempt. When a man gets this into his head he may safely defy law; and that is what they do do. *Law* is *powerless*, and therefore our only hope rests in the gospel of Christ Jesus. Booker Washington, in a recent address, in considering this lynching business, calls attention to the fact that every colored man who has been guilty of this nameless crime was ignorant, and entirely uneducated. He calls attention to the fact that, when the colored people are educated and Christianized, this thing will be cured. I have not learned the history of this father and mother of whom I have been telling you; but my impression is, an explanation will be found *somewhere* behind this terrible state of affairs. One of the children has died, but the others will probably recover, so we are told.

Some of the friends who wish to put all of the blame on trusts and like corruptions of modern times say these people were driven to the terrible act by poverty—could not get work. But the suicides are not confined to the needy poor by any means. People in all classes of society are guilty. Even millionaires, quite a few of them, have thrown away and trampled in the dust that precious God-given gift, a human life.

Those who really love the human race, and are interested in the general progress of the age, lament these things, and are looking for a remedy. What is the matter? You know, of course, that I would suggest that our text explains it, and gives the remedy in one sentence. But sad it is, I know, that we are obliged to confess this terrible work is not confined alone to skeptics and unbelievers. Quite a few church-members commit suicide. I do not now remember a minister of the gospel being guilty of such a crime, but I presume there may be such cases. In olden time, Jesus, and he alone, had power to banish demons, and it rejoices my heart to be able to say, without any fear of having made a mistake, that the gospel of Christ Jesus is fully able to correct all of these things even now; and I do not know of any thing else in this whole wide world that can cast out these particular demons. "There is no other name given under heaven among men whereby we must be saved."

Why do professing Christians commit suicide? Many times it seems as if the only explanation to be given is that their mental or physical sufferings are such they can not bear them; that they were driven to it by pain, or that they were no longer responsible. Now, I do not want to be harsh nor uncharitable; but I can not help feeling and saying that one who is truly hungering and thirsting after righteousness will never for a moment listen to Satan's suggestions under any circumstances. There are half-hearted Christians; there are selfish Christians; but one who has said in his heart,

Jesus, I my cross have taken,
All to leave and follow thee,

will never think of throwing away the life that God gave. If we belong to Christ we are not our own, and self has no standing-place. It is the selfish man or woman who listens to Satan's suggestions in this line. Who ever heard of a missionary who gave his life for the good of humanity, committing suicide? Who ever heard of such a thing? Why, the idea is incredible. It is preposterous; and every child of humanity who has permitted thoughts of this kind to come into his mind should be warned that he is leading a selfish life. Selfishness is *death* to any one. Living for the good of others is *life*, and life everlasting.

The demons that prompt these terrible deeds get into the human heart, many times, through strong drink; but I am led to believe that oftener still they come through spite, jealousy, or anger. A few months ago a physical epidemic was sweeping over the land, and it was called grip. It is a comparatively new thing, but no imaginary thing, as you and I both suffered by it. I am inclined to believe there are things that belong to the moral and spiritual world that sweep over humanity in much the same way. I have been moved to write these very words by feeling that possibly Satan was being granted more power, or, if you choose, unusual power, in these latter days. They say a crazy man is more vicious toward his best friends than toward anybody else. He is more likely to murder the dear wife and children who have borne with him patiently, and cared for him long years. By the way, it would be a great mistake to say that *all* insane people are responsible or partly responsible for their insanity; but I am satisfied in my own mind that a great many cases of insanity come just from yielding to temper, or, if you choose, to Satan. We are admonished in Holy Writ that Satan will have more liberty for a time. I do not know but this time is coming. With all our wonderful discoveries in the arts and sciences, with our telephones, X rays, and wireless telegraphy, it would seem strange that *Satan* should be making progress also. But this same Bible tells us he is generally on hand.

Now, it seems strange and incredible to me that a veteran, or at least something of a veteran, in Christian warfare, should be tempted of the Devil. Sometimes during these beautiful spring days I become very tired. Sometimes combinations of circumstances seem exceedingly perplexing. I become vexed at humanity; yes, may God forgive me when I admit that at times I feel tempted to be harsh and unkind to the dear partner whom I love more than any thing else on earth. I would not say this did I not feel it might be helpful to some of the other fathers and also to the mothers in the home. Sometimes a very little thing vexes me in a way that I can not understand. Something seems to say, "Do this," or "Do that," or to *say* that harsh, uncalled-for and ugly word. I did not say it, dear reader, and may God be praised for so much. Well, I have sometimes looked with wondering horror at the suggestions it seems to me some evil spirit must have whispered in my ear. In Pilgrim's Progress, Christian is feeling troubled at the awful words that he is compelled to think he has uttered when passing through the dark valley; but a great and wise friend told him not to worry; that the prince of darkness was in the habit of whispering words over the Christian's shoulder, and by his skill and dexterity making him verily believe that he (the Christian) himself was guilty of the blasphemous curses. I have had such experiences; and were it not for that little prayer, "Lord, help," I might have been so foolish as to hurt and harm those about me by speaking out when I was faint from lack of sleep or perhaps from want of food.

Now, dear brother and sister, these new and terrible temptations are in the air. First the thing breaks out in your neighborhood and then in mine; and before people get over one shock another terrible thing startles community. It behooves Christian people and everybody else to be more on the alert and more on the watch. I do not know what happens after death; but I do feel sure that every perpetrator of these horrid crimes finds, when he has passed to the great unknown beyond, that he has made a terrible mistake. Why, even *young* people are guilty of the crime of suicide. Boys and girls in their teens have been victims of this awful craze. In looking over the circumstances (and God knows I have done it only in order to get at the root of the mischief) it seems to me many times as if the boy or girl, as the case might be, intended to get even with somebody by this awful act. A certain girl wanted to go to some questionable place of amusement, but her mother refused to let her. She made some sort of threat that her mother did not understand. At that moment Satan, who is always lurking near, takes possession of the child's heart. She was possessed with a devil. The devil said, "But won't your mother be sorry when she finds out what she has done? and won't it make a stir in the neighborhood; and won't people be sorry that they trifled with you as they did, when this comes out? Just let them see that *you* are not one of the kind that can be tamed down by parental rules." A boy gets angry at his father. Satan persuades him, while his young heart is full of hard and bitter feelings, that he can strike a worse blow by an act of this kind than he could possibly strike in any other way. The rage and anger in his heart are fanned to a flame. Before he stops to think, and without considering the matter over night, or perhaps without considering it *one single moment*, the poor child seems to have lost all sense and reason, and his life is gone. Our text tells us the demoniac sat at the feet of Jesus, clothed, and in his right mind. Jesus made him a reasonable being instead of a maniac. Oh how I do love *reasonable* people — people who are fair, honest, and upright! How I do love people who are not biased and prejudiced — people who are not warped out of their better judgment by little spites and jealousies, and things that are coming up almost every day! Jesus, and he alone, can make people reasonable; can help them at all times to use the *good common sense* that is a gift of God. I myself am often tempted to be unreasonable. My natural vehemence is a good thing; it is one of God's gifts; but when it prompts me to push ahead, right or wrong, or just because I have got started in a certain line, then it is a *bad* thing. At such a time the dear Savior helps me to put on the brakes, and to ask myself the question, "Look here, old chap, are you yourself, just now, sitting at the feet of Jesus, clothed, and in your right mind?"

HIGH PRESSURE GARDENING

BY A. I. ROOT.

GROWING BASSWOODS FROM THE SEED.

For more than twenty years, off and on, I have been trying to get basswood seeds to grow as we get other seeds to grow. I have planted them in the fall, from the time of dropping, clear up to freezing weather; and I have planted them at all times in the spring, but with almost no success, except that where our rich plant-beds for gardening ran up under the basswood trees the little trees would come up themselves. In one case this spring, where the ground was almost covered with seeds, I had a bed spaded up, I think it was in March; but before we got time to sift it, level it, and plant it, a big rain came on, and the bed lay in that condition till April, and the little basswoods came up so that they averaged only from three to four inches to a foot apart. Another thing, where the basswood seeds fell on to the stone flagging under the trees, and rolled down into the crack between the flagging and one of the boards of the plant-bed, they came up through this crack quite thickly. Two years ago we sowed about a peck of seed on perhaps four rods of ground. They were sprinkled in drills touching one another; but not a dozen trees came up the following spring. When we felt sure they were not going to grow we sowed asparagus on the bed, and thought no more about the basswoods. Well, it was two years ago last fall that we sowed the basswood seed, so our asparagus roots are now two years old this spring. After the ground was pretty well shaded with asparagus shoots, the boys told me the little basswood-trees were thick down under the foliage. It made me think of the text, "Cast thy bread upon the waters," etc. From this incident we learn that basswood seeds may grow, even if they do not come up the first year or the second. I have been wondering if cracking open the hard shell that incases the seed might not assist germination. In the forest, under the leaves, this hard shell seems to decay or rot—possibly from prolonged dampness under the leafy covering. But even in the forest, only one seed in a hundred or one in a thousand germinates. I found a tree in the woods a few days ago that stood down near a mucky swamp, where the ground was quite damp and rich, and perhaps a hundred young basswoods were under this one little tree. I looked over the piece of woods pretty thoroughly, but I found only a dozen or less under most of the trees. We succeeded in getting pretty nearly a thousand out of the asparagus-bed, and more seem to be coming, even at this late date, May 18. Can anybody tell us how to get 50 per cent or even 25 per cent of the seeds to germinate?

This much I have settled: Basswoods grow with much more vigor on well-manured rich ground, especially ground that has been manured for many years, so that it is old, black, and rich. Under such conditions I have had little trees grow three feet high the first season. We take them up from our plant-beds, from under the trees, or wherever we can find them, and set them out as we do cabbage-plants, putting them about four inches apart each way. Of course, where they are put so close as this they should be planted further apart the second year; but we sell a great many of them, one foot and under, to be shipped by mail.

FARMING WITH GREEN MANURE.

I notice that more than usual attention is being given of late to bringing up the soil by turning under crops, especially since cow peas, soja beans, crimson clover, etc., have been used for this purpose. Some years ago we purchased great quantities of manure at our livery stables; but it made our potatoes so scabby that I have of late been getting the ground in condition by turning under clover, both crimson and red; also rye, and this spring, even wheat. I have for many years back noticed the advertisement of a book entitled "Farming with Green Manures." After sending for the book I was surprised to notice that it was first published in 1876. Well, some of its statements are most astounding. It discusses, of course, turning under various crops to improve the land. In regard to rye, we find that it is rated, ton for ton, at nearly the value of barnyard manure. Now, fifteen tons of green rye per acre is not a large crop, and it is estimated that barnyard manure can not be drawn and spread for less than $1.50 per ton. But the author figures that barnyard manure will cost more than *twelve times* as much as the rye. I do not know but I should call a ton of green clover, counting roots and all, worth as much as a ton of barnyard manure; but I am sure it is a mistake to figure rye anywhere near the equal of clover. Rye can be grown in eight months, or a little more; crimson clover in nine or ten months; red clover takes a year or more. Well, even if this book *is* old it has interested me "exceedingly." In the preface for 1893 I find the following:

> Thirty years ago, before the bugs came, I raised over nine hundred bushels of potatoes to the acre under straw about fifteen inches deep. But I can not do it now. This year I tried it. The battle with the bugs almost destroyed the crop.

In the last chapter of the book the author shows that, where potatoes are grown under straw, the straw must not be tramped, as it damages the roots of the potatoes; and the modern Colorado beetle necessitates tramping through the field.

Well, we have more than an acre of orchard that contains the biggest growth of dandelions and timothy that I ever saw on any ground. We formerly grew, between the apple-trees, market-gardening stuff, therefore the ground is very rich. Well, I wanted to get rid of those dandelions, but I did not care to put a plow into the orchard, as the trees are so large. Almost in the middle of the orchard is a big strawstack, left over from our wheat crop last year. After I found that some of our neighbors had seen potatoes grown under straw, when they were simply laid on grassy sod, I decided to try the experiment. I stretced a line and dropped the potatoes right in among the dandelions, after first rolling them down flat. Then we piled on straw all through the orchard until not a dandelion was visible; and I mean to keep on straw enough to *keep* them invisible. I do not fear the bugs very much. As we killed them so thoroughly last year I do not believe they will trouble us; and at present writing, May 18, we have potatoes a foot high, and almost not a bug.

Since getting the straw in place I begin to see why people do not practice growing potatoes on straw more than they do. In our locality the straw is worth something; and when you get at it you will find it is quite a bit more work to plant an acre under straw than it is to get them in with a good team in the ordinary way. I think I shall not worry about the expense of digging until I find out we have got some to dig; but if I can convert that great mass of dandelions into manure—roots, tops, and blossoms—there certainly will be material for a good crop of potatoes—at least according to Harlan, the author of the book that has been more interesting to me than was even Robinson Crusoe when I was a boy—I mean the book called "Farming with Green Manures," by the O. Judd Co.

NITRATE OF SODA FOR RHUBARB, ASPARAGUS, ETC.

Friend Root:—I am a gardener on a small scale; but, as in bee-keeping, I experiment a good deal. Within a few years I "got on" to the effect nitrate of soda has on certain kinds of vegetables, such as asparagus and rhubarb. We set about a dozen roots of rhubarb; but, though it was heavily manured, it did not put forth that heavy growth and the large stalks that I wanted to see One morning, while it was raining quite hard I put about two quarts of nitrate about the roots, scattering it over the ground. In about two weeks the rhubarb took on a rapid growth, and I never saw any thing like it. We now have all the rhubarb-plants we need.

Like the rhubarb-plants, our asparagus was set and very heavily manured. It came up and did very well for a few years; but, though it was well taken care of, the weeds kept down, and manure applied each year, the shoots gradually grew less, and in some places no shoots came up at all. Last spring I said, "Let us try nitrate of soda." We did so, and inside of two weeks there was a visible improvement. New shoots came up in all the rows, and in some places the stalks came forth where it seemed to me there had been none for two seasons. Why, as late as in September the new shoots continued to put out. When fall came we had the best and thickest-set asparagus-bed hereabout.

I notice that nitrate of soda works just as well on raspberries and blackberries; but on strawberry-plants I do not see quite as good results—in fact, no results at all. I shall use nitrate of soda largely on all the above plants in future, and shall be glad to hear through GLEANINGS your experience on the above.

Wenham, Mass., April 10. HENRY ALLEY.

Friend A., I have failed so much with nitrate of soda I had about given up making experiments; but I will try it at once on our rhubarb. But is not two quarts to twelve plants rather expensive fertilizing? With a good market it might pay, and I shall be greatly pleased if even that amount will make even a perceptible difference with our rhubarb.

COTTON-SEED MEAL AS A REMEDY FOR POTATO BUGS.

A friend, who is strictly reliable and careful, tells me he has been using, the past two years, cotton-seed meal as a fertilizer on potatoes, and has had no bugs to bother, and they are grown on the same ground where he has been troubled with the Colorado beetle for many years. He is using it again this year, and thinks it a sure preventive. The meal is put into the row with the potato, and covered all together.

Winchester, Ky., Apr. 21. JNO. S. REESE

I may be mistaken, but I hardly think it was the fertilizer applied to the potatoes that kept the bugs away. Had your friend applied the cotton seed on one half of his patch, and found the bugs mostly on the other half, the experiment would have been more conclusive. In our locality, some seasons there are almost no bugs at all, especially if they have been thoroughly killed the year before. Our experiment stations will be glad, I am sure, to test the matter, and perhaps they have tested it.

THE EARLIEST STRAWBERRY.

To-day, May 30, we are making about our first picking in the open field; and the Earliest, as before, stands a good way ahead of any thing else. On our grounds we find it even ahead of Darling; but the originator thinks Darling is a little the earlier of the two. I am surprised this season to find the Earliest bearing good-sized berries, and they are growing in a thick matted row at that. It does not give as many berries as the later ones, and they are pretty strongly acid in flavor, and perhaps rather soft to handle. But they give us quite a lot of berries two or three days before any thing else. Last year the Rio crowded close on the Earliest; but this year they are more behind. Now, another thing must be taken into consideration: Rich soil and close planting makes berries later. Right alongside our row of Earliest are some Warfields. On good ground none of the Warfields are ripe; but on a little piece of yellow ground where the top soil had been removed, the ground is so poor that the plants are scattering, and small at that. Here the sun had got in, and we found quite a lot of dark garnet-like Warfields glistening through the dew-drops in the morning sunshine. You can make any berry earlier by putting it on poor ground and having the plants far apart so the sun can get in easily. I thought once we would not plant any more Earliest, as they bear so few berries; but I have just given the boys orders to put down the runners around the edge of the patch, and before we get ready to plow them up we shall have plants enough to make a row or two for next year; and the plants must be thinned out and given room if you want Earliest to be *extra* early.

Humbugs and Swindles.

THE ARCTIC REFRIGERATING-MACHINE.

The above is the name of an apparatus guaranteed to cool refrigerators at an expense of 75 per cent less than ice. Quite a little circular describes the discovery, and tells about the "Arctic" compound that goes with the machine. There are a great lot of references; but they give as an excuse for not giving the postoffice address with these references that it annoys the owners of the machines too much to answer the questions and show the machine; and——their way of doing business is cash in advance — no exceptions made to anybody. I wrote them a pleasant letter, telling them I was willing to send them cash in advance, but I should first like references in regard to their standing, such as we were ready to give them in regard to ours. They replied flippantly, that the fact that they were permitted to do business through the United States mails was a sufficient guarantee of their reliability, and that, if I was afraid to risk sending them money, they preferred I should keep it. Now, if an ice-machine can be bought for $15.00 that will keep a refrigerator cool enough to freeze water, at a cost ever so much less than that of ice, I was determined to have it, and so I asked our representative in Cincinnati to call on the Arctic Refrigerating Co. They (the one clerk found in the office) put him off in a good many ways, and finally told him they had not a machine in their possession to show to customers, and that they were going to move away soon anyhow. Oh dear me! I have wanted a little ice-machine, and one that would not cost much to run it, all my lifetime. And now I can not have it, even when my money is all ready. I told the firm I would give them the biggest kind of advertisement, free of charge; but they did not appreciate my kind intentions at all. But you see I have given them the advertisement all the same; only be sure *not* to send them any money. And, by the way, do not send any money to *anybody* who refuses to let a responsible party examine a machine before paying for it. I was overpersuaded not many months ago to send money to a Cincinnati firm—one that did not do business unless they had cash in advance. I did it in trying to help a third party. They made many promises to send the money right back if the article did not give perfect satisfaction; but after they got the money they somehow lost *interest* in the matter.

Later.—We find the following in the Cleveland *Press*:

> Cincinnati, O., May 26.—W. B. Preston was arrested yesterday charged with using the mails with intent to defraud. He offered a refrigerator for $7.00, which he said would save 75 per cent of the cost of ice by a secret chemical process. The machine consisted of four pieces of galvanized iron and a faucet, and the chemicals are glauber salts and sal ammoniac on the ice, both common in commercial use. He gave bail.

The above is, without question, the party I have been corresponding with. The picture of the machine has quite a taking look; but their wonderful discovery—why, when I was a boy in my teens, studying chemistry, glauber salts and sal ammoniac were used for the very purpose of producing a freezing mixture, but it cost ever so much more than to procure ice in the usual way.

Alexander McLaren says in the *Sunday School Times*:

> "We may live in a republic, and yet be slaves; for liberty consists, not in doing what we like, but in liking to do, and in doing, what we ought."

SPECIAL NOTICES BY BUSINESS MANAGER

BUSINESS AT THIS DATE.

The demand for goods continues very light, and we have no trouble in filling all orders promptly. We get reports from different sections of the country which point to a large yield of clover honey if weather conditions continue favorable. The demand for sections has been remarkably good; and if we have a repetition of the clover bloom of two years ago the demand for sections should continue till August Send on your orders if in need of any thing, with the assurance of receiving prompt service.

BEESWAX LOWER IN PRICE.

A year ago at this time, owing to the very great demand, there was a flurry in the price of wax, and it brought 32 cents in some cases This year the tendency is just the reverse. The market is easier, and we are obliged to reduce the price we pay to 24 cents cash, 26 in trade, for average wax delivered here. We have enough wax on hand to finish the season, so that what we take in from now on will be accumulated stock for the year to come. We do not lower the price of foundation: but if any have wax that they want to exchange for foundation we will allow 28c in exchange for foundation only. Exchange price for any thing else will be 26c or cash price 24.

LENOX SPRAYER.

We still have on hand a few of the Lenox sprayers. The regular retail price of this has been $4 00. We have sold them heretofore at $2.50. We offer the few we have left at only $1.50 each. They are used for spraying potatoes and other small shrubs and vines, and by means of the rubber bulb you have perfect control over the direction and amount of spray. We can not supply any more after the half-dozen on hand are gone. We have also two or three of the Myers fountain knapsack sprayers which work on the same principle. Price $2 50. Little Giant spray-pump, $2.50. Barrel spray-pump, $6.00. Knapsack spray-pump, $5.00. We have only two or three of each kind on hand to furnish.

SECOND-HAND FOUNDATION-MILLS.

We have at this writing the following second-hand foundation-mills which we offer at the following prices:

One 6-inch Root, No. 1858. This will make fair thin or extra thin; in good order; several cells slightly damaged; price $12.00.

One 6-inch Root mill, No. .05; one bad cell-point slightly flattened; extra thin; price $15.00.

One 10 inch old-style Root mill No. V. V.; round cell; price $8 00.

One 12-inch Root No. .02; 2-inch roll; round cell; in good order; price of a new mill is $36.00; will furnish this for $15.00.

One 10-inch Root mill, No. 1949; hexagonal cell; this has 2½-inch rolls and has been in use in our wax-room; in first-class condition for thin super. A new mill of this style is worth $30.00; will furnish this one for $20 00.

One 10-inch hexagonal No. 1959 for thin super. This has also been used in our wax-room, and has one bad cell; price $18 00.

One 6-inch hexagonal 2½-inch roll, for thin super or light brood; new mill; would be worth new $24.00; price for this, in fair order, only $15.00.

Send for samples of the mills you are interested in, provided you intend to purchase, and state which ones you wish to see samples of, and we will forward them promptly.

Special Notices by A. I. Root.

FARMING WITH GREEN MANURES.

The above book, which I have alluded to elsewhere, we can furnish to our readers for 90 cts., postpaid. The publisher's price is $1.00. This is a good-sized book, and it seems to me it ought to be worth many times the price to anybody who is at all interested in the subject.

THE FAULTLESS SPRAYER, ONCE MORE.

I am very sorry to say that, since the manufacturers have been so terribly rushed in getting out these machines, in at least one lot there has been a careless adjustment of the tubes. Sometimes they can be got in place by simply bending the water-tube. To be just right, the air-tube should blow just across the top of the water-tube. With one or more sprayers we had to take a file and cut the top of this tube down so the air-blast could blow directly over it. It takes only a minute or two, and anybody can do it with a common file. Please don't send any machines back, but try to fix them according to the above instructions, and we will pay for all time and trouble. The manufacturers were duly warned of the imperfection, and I hope only a few got out that did not work properly.

Root's Goods for California.

We have just received a large carload of sections, extractors, smokers, veils, etc., direct from the factory, and are prepared to supply bee-keepers with the same promptly. Do not send a long distance and pay high freights. Write for our prices.

M. R. MADARY, = Fresno, California.

In writing, mention Gleanings.

LAKE GEORGE BEE & POULTRY FARM.

Breeder of pure Gray Carniolan and Golden Italian bees and queens, and Barred, Buff, and White Plymouth Rocks. Eggs for setting (15), $1.50. Untested queen, 75c; tested queen, $1.50; select tested, $2.50. For prices on imported queens, nuclei, and full colonies send for free descriptive price list.

Testimonial.

Cohoes, N. Y., April 17, 1899.

Gentlemen:—The queen I got of you last year is a beauty, and her bees are great workers. I wish all my bees were like them. WM. B. LOWE.

ADDRESS

F. A. LOCKHART & CO., Caldwell, New York.

In writing, mention Gleanings.

Queens. Queens.

If you want good queens try mine. They are strictly pure Italians, and are all purely mated. My strain of Italians are unequaled as honey gatherers, and have no superior. Tested queens, $1.00; select tested, $1.50; untested, 75c.

ARTHUR P. BENDER, Rutherford, N. J.

Untested = Italian = Queens.

Fifty cents each; warranted
1st-class. Tested queens, $1.

W. C. Gathright, Dona Ana, New Mexico.

QUEENS. Untested, 65c; two for $1.25. Warranted, 80c; two for $1.50. Tested, $1.25. Select tested, $2.00. My bees are bred for business, and work well on RED CLOVER. If you want honey try them. Satisfaction guaranteed. Send for circular.

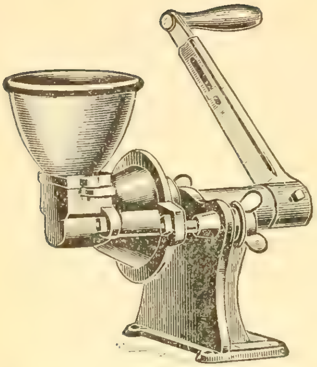
C M HICKS,
Hicksville, Washington Co., Md.

QUEENS. Either five-banded golden or from imported Italian mothers. A few breeders at $2 00 each; tested, $1.00, or 6 for $5.00; untested, 75c, or 6 for $4.00. B. P. Rock eggs, 75c for 13. **CHAS. H. THIES, Steeleville, Ill.**

QUEENS. Untested Italian, $1.00 each; tested, $1.25 each. Catalog free. Address THEODORE BENDER, Canton, Ohio.

FOR SALE.—Self-regulating incubators. Guaranteed to hatch 90 per cent. Send for catalog. Address **M. E. FIRESTONE, Sidney, Ohio.**

FOR SALE.—Japanese buckwheat for seed. Price $1.00 per bushel, f. o. b. Lehigh Valley R. R. Bags free. C. J. BALDRIDGE, Kendaia, Seneca Co., N. Y.



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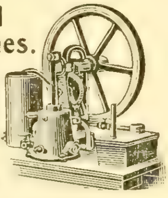

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SPRAYING with our new patent **Kerosene Sprayers** is simple indeed. Kerosene emulsion made while pumping. 12 varieties sprayers, Bordeaux and Vermorel Nozzles, the "World's Best." **THE DEMING CO., SALEM, O.** Western Agents, Hennion & Hubbell, Chicago. Catalogue and formulas free.

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For One Dollar.

GLEANINGS and your choice of the following papers one year.

AMERICAN AGRICULTURIST with Farmer's Almanac.
ORANGE JUDD FARMER with Farmer's Almanac.
N. E. HOMESTEAD with Farmer's Almanac.
FARM JOURNAL.
POULTRY KEEPER.

For One Dollar and Ten Cents.

GLEANINGS and your choice of the following papers one year.

PRACTICAL FARMER, PRAIRIE FARMER, MICHIGAN FARMER, OHIO FARMER.

One Dollar and Twenty-five Cts.

GLEANINGS and RURAL NEW-YORKER one year.

One Dollar and Thirty Cents.

GLEANINGS and NATIONAL STOCKMAN AND FARMER one year.

One Dollar and Fifty Cents.

GLEANINGS and COSMOPOLITAN or MCCLURE'S MAGAZINE one year.

GLEANINGS ONE YEAR, and one untested Italian queen, for $1.00 only. We begin mailing these queens in June, and orders are filled in rotation, so the sooner your order comes, the earlier you will get the queen.

GLEANINGS ONE YEAR, and No. 1 Repairing Outfit. Price of this combination only $1.75. We can ship these outfits from Syracuse, N. Y., Mechanic Falls, Me., Medina, O., or Des Moines, Iowa, so the freight will be low.

GLEANINGS ONE YEAR, and Mantel Clock, both for $4.50. Can ship clocks from Cleveland or New York city.

Last of all, if you don't want any of these clubbing offers, send us 50 cents for Gleanings the remainder of the year.

HILDRETH & SEGELKEN,

120-122 WEST BROADWAY, NEW YORK.

Jobbers and Commission Merchants.

Honey, Beeswax, Maple Sugar and Syrup.

We desire to inform our friends and patrons that our firm has been reorganized and additional capital added. The business will be conducted under the firm name and style of

HILDRETH & SEGELKEN,

at the old stand, where we have had the pleasure of serving our friends for the past 11 years. Management and supervision will be the same ; and our business methods, those of square and honest dealings, will be practiced as heretofore.

We believe we have won the esteem and confidence of our shippers throughout the country, and that our dealings, as a rule, have been of the most pleasant nature.

Our additional capital will put us in a position to increase our already large business still farther, if possible, and at same time enable us to treat our shippers even more liberally than heretofore, in making advances, etc.

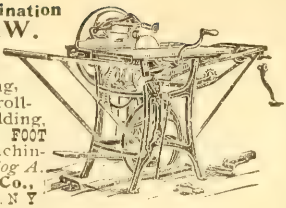
Records will show that we handle by far the bulk of all the honey sent to our market. We make honey the principal part of our business, are personally acquainted and have trade connections all over the country, which enables us to handle any amount of honey to better advantage than any other house.

Our old shippers know us and will bear us out in what we have said. Those bee-keepers who do not know us, and have had no dealings with us, we would cordially invite to correspond with us and make our acquaintance.

We not only handle on commission but buy largely as well, from small lots to carloads, for spot cash. We wish to call the attention of southern bee-keepers to the fact that our market never was in better condition than this season. Old stock is disposed of and the market is bare, with a good demand. New crop will find ready sale and at higher prices than have ruled for years past. We would advise them to send their honey while there is a good demand at good prices, as later on conditions of the market may change. We also handle maple sugar and syrup very extensively, and would be pleased to hear from those having any of these goods to market. In conclusion we wish to extend our thanks to all of our shippers for their past favors and trust to receive their kind consideration in the future.

In writing, mention GLEANINGS.

Union Combination SAW.



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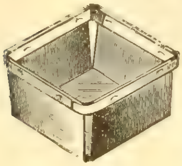

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Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX Co.,
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In writing, mention Gleanings.

MY QUEENS are carefully bred from best **selected mothers** by Doolittle's method; golden strain. **Working qualities**, not color, is my aim Nearly 500 lbs. of honey was reported by Harry Mitchell, Hawks Park, Fla., from one colony with one of my queens. Prices: **Warranted**, 75 cts.; six, $3.50; dozen, $6.50. From three-band mother, same price. Free circular.

J. B. CASE, Port Orange, Fla.

Adel Bees ARE not Italians; they are GOLDEN Carniolans, and practically a non-swarming, non-stinging strain of bees, great honey-gatherers, and sure to winter. Tested queens, each, $1.00; six queens, $5.50, or $9 00 per dozen. Every thing guaranteed. Book giving 37 years' experience in rearing queens sent free.

HENRY ALLEY, Wenham, Mass.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2 50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1 00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

In writing, mention Gleanings.

WANTED.—To sell 200 colonies of bees at $6.00, in two-story eight-frame new Dovetailed hives.
G. F. DAVIDSON & SONS, Fairview, Texas.

Wants and Exchange.

WANTED.—To exchange firearms of every description for old clocks (grandfather).
W. S. AMMON, 216-218 Court St., Reading, Pa.

WANTED.—To furnish my hives and sections, to careful men, for a share of No. 1 clover honey. Also 4 sizes of the prize comb-honey cartons, and 68 pages of "Facts about Bees," for 6 cts. in stamps.
F. DANZENBAKER, Washington, D. C.

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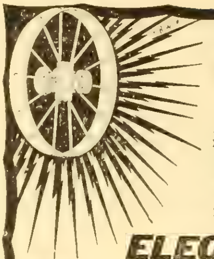
WANTED.—To exchange 10-frame Dovetailed hives with worker combs, old-style or tall plain section supers, complete, at $2.25 each for Danzenbaker hives in flat. Also Japanese buckwheat for exchange valued at $1.00 per bushel, grain-bag free, or 15c per lb. by mail. Also World Wide Encyclopedia to exchange. A. H. KANAGY, Milroy, Mifflin Co., Pa.



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may need **new rings, new spokes or new tires.** These repairs have to be made every little while with wooden wheels. Stop **all this** expense **for all time** by buying **a set of our**

ELECTRIC Steel Wheels

They are made with **direct** or **staggered oval spokes, broad tires, any height,** and to **fit any wagon.** They can't **rot, go to spokes** and need no tire setting last indefinitely. There is only one thing better, and that is an

ELECTRIC HANDY WAGON.

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ELECTRIC WHEEL CO. Box 95, Quincy, Ill.

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have no equal. Save time, save hard work, save stings, save cappings to the honey. No practical bee-keeper can afford to get along without them.

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Their great superiority over every thing else of the kind has driven all competitors from the field. For sale everywhere. Manufacturers' agents.

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Pure-bred, five-banded Italian queens 75 cents each. Tested, $1.00 each.

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Falmouth, Rush Co., Ind.

FREE! FREE!

With bee-supply orders, bee-books and subscription to bee-journals. Every thing cheap. Send for list.

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DON'T FORGET

That we shall want, this season, two carloads of the finest white-sage or white clover honey, mostly extracted.

J. A. Buchanan & Sons, Hollidays Cove, W. Va.

Black and Hybrid Queens for Sale.

Black and hybrid queens, 20 and 25 cents.
T. N. Briggs, Marion, Plymouth Co., Mass.

Stock Differs.

One spring, when living at Rogersville, and getting my living by the production of comb honey, I bought three lots of Italian bees. One lot of 20 colonies was from near home; another lot of 20 came from 30 miles away; another lot of 30 from 80 miles away. Each lot of bees had peculiarities that seemed to pervade every colony of the whole lot. The bees of one lot were good workers—just about like the bees I already had. My average that year was 50 lbs. a colony, and these bees came up to the average; but they were the most vicious bees that I ever attempted to handle. They were perfect devils—that's the only word that fully describes their disposition. As soon as possible their queens were replaced with others; and, towards fall, peace again reigned in the apiary. Another lot was easy enough to handle, but *lazy* is the only word that fitly describes the bees. Honestly, the average of this lot was only 25 lbs. The lot of 30 was as peaceable a lot of bees as I ever had in my apiary. I doubt if I was stung by one of them unless I accidentally pinched it. The average of this lot was 60 lbs.; and quite a number of individual colonies stored over 75 lbs. of surplus—something that was not done by any colony of any other lot of bees in the yard.

Such experiences as these have thoroughly convinced me that there is a difference in bees in regard to their disposition, industry, and various other traits. What bee-keeper of experience has not noticed here and there a colony far out-stripping the general average? This may not be quite so noticeable if a man keeps the same strain of bees year after year, but the one who buys queens occasionally, and thus has several strains of bees in his yard, will surely notice it.

For many years I have been buying and selling bees and queens, getting them from a great variety of sources, and I can honestly say that, of all the strains I have in my yard, none have surpassed in gentleness, industry, hardiness, and finish of capping, that of a certain breeder, who, for 20 years, has been working, by crossing and selection, to develop a superior strain of three-banded Italians. He has paid a great deal more attention to the development of this stock than he has to its dissemination and sale. Perhaps he has never fully realized what he has accomplished — not having other stock with which to compare it, as I have had. Now that I have become fully convinced of its superiority, I am going to help him, myself, and my readers, by advertising this superiority, and offering queens for sale.

The price of the queens will be $1.50 each, but I guarantee safe arrival, safe introduction, and purity of mating; and at any time within two years, if a purchaser feels that he has not got the worth of his money, he can return the queen, and get his money back, and 50 cents to boot to pay for his trouble.

If you are interested in this matter, and have not read my advertisements in the last two issues of GLEANINGS, turn back and read them, as they give particulars that are not given here.

I said that the price would be $1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the REVIEW. Any one sending me $1.00 for the REVIEW for 1899 can have one queen for $1.00; that is, I will send one queen and the REVIEW for 1899 for only $2.00. Of course, this special offer is made for the sake of getting the REVIEW into the hands of those who are unacquainted with its merits. Orders will be strictly in rotation.

W. Z. Hutchinson, = = Flint, Michigan.

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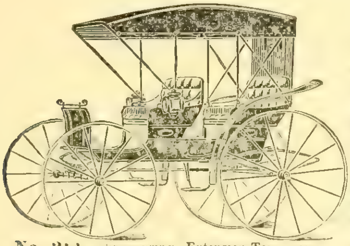
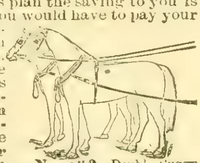


No. 214—Three-spring Extension-Top Carriage. Price, complete, with lamps, fenders, curtains, storm apron and pole or shafts, $65; usual retail price, $95.

This is a question that every man should ask himself when it comes to a business proposition. For instance, we manufacture **vehicles and harness** and sell them **to you direct from our factory at wholesale prices.** On this plan the saving to you is **about 35 per cent;** that is, you would have to pay your local dealer or agent about that much more than you pay us for the same quality of goods. **Is not this item worth saving?** We make 170 styles of vehicles and 65 styles of harness and are **the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively.** We make every article we sell and ship **our goods anywhere for examination** and guarantee everything. You have the advantage of large selection, newest designs, latest styles, &c. Above all you have a guarantee of quality at a reasonable price. **144-page illustrated catalogue FREE.**



No. 130—Double Buggy harness, with nickel trimmings. Complete with collars and hitch straps, $20. As good as sells for $30.

Elkhart Carriage and Harness Mfg. Co. W. B. PRATT, Secretary. **Elkhart, Indiana.**

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Golden Italian Queens.

Warranted purely mated; all queens by return mail; will run 1200 nuclei; queens reared by Doolittle's method; safe delivery and satisfaction guaranteed; have 11 years' experience, and know what good queens are. Price 75c; six for $4.00. Selected, $1.00; six for $5.00. After July 1st: 50c each; six for $2.75. Selected, 75c; six for $4.00. My queens are prolific, and workers industrious as well as beautiful to look at. Hundreds of testimonials prove this. Just now I have a nice lot of queens which have just started to lay. Order at once, and I will send you something fine.

Special low price on queens in quantities. Address

H. G. Quirin, Parkertown, Erie Co., Ohio.

MONEY-ORDER OFFICE, BELLEVUE.

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THE BEST OF ITALIAN QUEENS.

BY RETURN MAIL.

Large yellow queens, healthy and prolific. Workers gentle and the best of honey-gatherers. Tested, $1.00 each. Untested, 75 cents; $7.00 per dozen. Send for our price list.

J. W. K. SHAW & CO.,

Loreauville, = Iberia Parish, = Louisiana.

Illustrated Catalogue of best American and foreign strawberries, with treatise on their culture.

A. T. GOLDSBOROUGH,
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Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.

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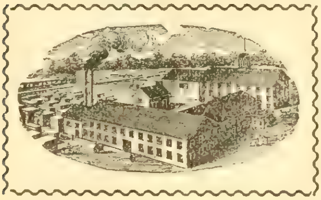
OFFICE
WAREHOUSE

Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.



BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **Tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address E. KRETCHMER, Red Oak, Iowa.

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The Necessities of To-day.

Twenty years ago, comb foundation was a luxury. To-day it is a necessity. We sell the Weed Foundation—the best made. Root's sections to go with them are unparalleled. Send for catalog. If a dealer, get our wholesale list. Beeswax wanted.

M. H. HUNT & SON, Bell Branch, Wayne Co., Michigan.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

QUEENS. Untested after May 1st, 70 cts.; 3 for $2.00; 6 for $3 75. Select tested, $1.00 each; 6 for $5.00. Extra select breeding queens, $2.00 each. The very best of golden Italian.

E. A. SEELEY, Bloomer, Ark.
P. O. M. O. Office, Lavaca, Ark.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Italian BEES AND QUEENS. Queens, $1 00. Bees by the lb., $1.00. Nuclei, two frames with queen, $2.00; one frame, $1.50; each additional frame, 50 cts. each. **Mrs. A. A. Simpson, Swarts, Pa.**

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

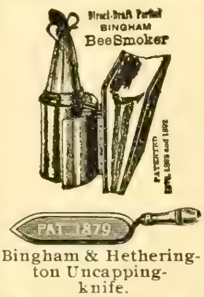
Smoke Engine (largest smoker made.)	4-inch stove.	Doz. $13.00;	each, by mail,	$1.50
Doctor	3½-in.	" " 9.00;	"	1.10
Conqueror	3-in.	" " 6.50;	"	1.00
Large	2½-in.	" " 5.00;	"	.90
Plain	2-in.	" " 4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	" " 4.50;	"	.60
Honey-knife		" 6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

NEW YORK.—Our market has never been in better shape for both honey and beeswax so far as stock in hand is concerned. We would suggest to southern shippers of extracted honey letting it come forward. We have en route several shipments of new southern extracted at this writing. Our market has dropped off lightly on beeswax though there is a steady demand. We do not expect much more trade in comb honey until the new goods begin to arrive in early fall. We quote our market as follows: Comb honey—fancy white, 12½@13; No. 1 white, 11½@12; fair white, 9½@10½; fancy buckwheat, 8@9; No. 1 buckwheat, 7@8; fair buckwheat, 6½@7. Extracted honey—Florida white, 7@7½; Florida light amber, 6@6½; other southern fancy, 65@70 per gal.; same, fair, 60@65; same, good, 52½@58. Beeswax, per pound, 27@28. Write us before shipping. FRANCIS H. LEGGETT & Co.,
May 27. Franklin and Varick Sts., New York.

DETROIT.—There is no honey in the commission houses that could be called fancy, and very little of any kind. Berries are taking the attention of both buyers and sellers. The new crop will find a clean field. Prices will remain the same as last quoted. Beeswax 24@25, with good supply.
June 9. M. H. HUNT & SON, Bell Branch, Mich.

CLEVELAND.—We quote our honey market to-day as follows: Fancy white, 12½@13; No. 1, 11@12; fancy amber, 10; No. 1, amber, 8@9; fancy dark, 7@8; white extracted, 7. A. B. WILLIAMS & Co.,
June 7. 80-82 Broadway, Cleveland, Ohio.

ALBANY.—Honey market quiet with but very little doing, at our last quotations. Beeswax, 26@28.
MACDOUGAL & Co.,
Successors to Chas. McCulloch & Co.,
June 9. Albany, N. Y.

CHICAGO.—Not any new comb on the market. Some of the amber and dark grades remain unsold; extracted sells upon arrival, and those who have any would do well to get it into the market; white sells at 7@8; ambers, 6@7, according to quality, flavor, and package. Fancy white comb would bring 13c; off grades of white, 11@12; ambers, 10@11. Beeswax, 27.
R. A. BURNETT & Co.,
June 8. 163 South Water St., Chicago, Ill.

NEW YORK.—We have a good demand for extracted honey, all kinds, and same finds ready sale at the following prices: Fancy, 7@7½; choice, 6@6½; fair, 5½@6; common, 57@60 per gal. Some demand for comb honey at from 11@12 for white, and 9@10 for amber; no demand for dark. Beeswax dull at from 25@27, according to color and quality.
HILDRETH & SEGELKEN,
June 9. 120 & 122 West Broadway.

PHILADELPHIA.—There is no trade for comb honey at present, no new having arrived, and old comb being sold at any price dealers are willing to offer. Extracted honey is doing a little better. We quote fancy clover extracted 8@9; amber, 7; dark, 5@6. We are producers of honey—do not handle on commission.
WM. A. SELSER,
June 8. 10 Vine St., Philadelphia, Pa.

FOR SALE.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60-lb. cans for $7.20. THE ARKANSAS VALLEY APIARIES,
OLIVER FOSTER, PROP.
Las Animas, Bent Co., Colo.

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Root's Goods at Root's Prices.

POUDER'S HONEY-JARS,
and every thing used by bee-keepers.
Low freight rates; prompt service. Catalog free.

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512 Massachusetts Ave., Indianapolis, Ind.

Don't Buy Supplies

For 1899 until you see my 39th annual catalog. A full line of hives and fixtures best adapted to our New England climate. Also best brands of **Comb Foundation and Section-boxes.** I have also made arrangements to keep quite a general stock of

The A. I. Root Co.'s Goods, at their Prices.

Parties desiring these goods can get them of me, and **save freight charges.** Bees, Queens, and Nucleus Colonies from the **very best strains** in America. A 40-page illustrated catalog free. Address

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Eastern Bee-keepers.

If You are in Need of

APIARIAN SUPPLIES

send for our illustrated catalog describing every thing a bee-keeper uses. We keep the most popular goods, and sell them at prices that are right.

Italian Queens.

We own two apiaries, and our bees are "hustlers" for honey. "All yellow."
Tested queens, $1.00 each; three for $2.75.

I. J. STRINGHAM,
105 PARK PLACE, - - NEW YORK.

QUEENS. Untested Italian, $1.00 each; tested, $1.25 each. Catalog free. Address
THEODORE BENDER, Canton, Ohio.

For Only

40 Cents

to

New Subscribers.

The American Bee Journal will be sent every week from the time the new subscription is received till Jan. 1, 1900, for only 40 cents. Sample copy free.

ADDRESS

Geo. W. York & Co.,

118 Michigan St., - - Chicago, Ill.

Publishers of the oldest bee-paper in America.

FACTS About Bees.

REVISED EDITION.

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GILT-EDGED HONEY

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THE A. I. ROOT CO.,

Medina, Ohio,

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The A. I. Root Co.,

Bee-keepers' Supplies.

Medina, Ohio.

10 Vine St., Philadelphia, Pa.

Prices the same.
Order of nearest point.
Save freight and time.

Queens by Return Mail.

Daughters of best imported Italian queen mothers; reared by Doolittle method; warranted purely mated to drones of imported stock from a different source—hence, a direct cross Fourteen years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens 50 cts. each. Safe delivery and satisfaction in every case, or money refunded.

L. H. Robey, Worthington, W. Va.

Albino Queens. If you want the most prolific queens, if you want the gentlest bees, if you want the best honey-gatherers you ever saw, try my Albinos. Warranted queens $1.00; untested, 75 cents.

J. D. GIVENS, Lisbon, Texas.

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ROOT'S GOODS--ROOT'S PRICES

MUTH'S HONEY-JARS,
MUTH'S HONEY-EXTRACTORS.
LANGSTROTH HIVES,

and every thing pertaining to same; in fact, every thing used by bee-keepers. Send for our catalog.

C. H. W. WEBER,
2146 Central Avenue, Cincinnati, O.
Successor to Chas. F. Muth & Son and A. Muth.

GLEANINGS IN BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by The A. I. Root Co.
$1.00 per Year
Medina, Ohio.

Vol. XXVII. JUNE 15, 1899. No. 12.

STRAY STRAWS FROM DR C. C. MILLER

May 26, first white-clover blossom in this locality.

For cuts and bruises, propolis is recommended as an efficient healing plaster in *Praktischer Wegweiser*. Why not? And what will stay better in place if you get the really sticky kind?

Rambler thinks (p. 432) that we have more trouble with bogus honey than other nations. If you could watch the German papers, friend Rambler, you'd think they have troubles too, just as bad as ours.

One good result of the hard winter in this region, according to general belief, is the destruction of potato-bugs. Last year they were promptly on hand waiting for the potatoes to come up; and now with potatoes a foot high not a bug is to be seen.

G. Rumler insists in *Bienen-Vater* that cold is the cause of diarrhea; that confinement alone will not produce it, because bees do not wait for a flight to discharge their feces, but normally discharge them in a dry state in the hive. It may be remembered that S. Corneil contended for the same view.

Stenog says the ear detects the difference between *passed* and *past*. Then the ear detects what ought not to exist, for the dictionary gives the same pronunciation for each. Answering your questions, Stenog, *past* is shorter than *passt;* and if I had control I'd write *loct* for *locked*. [Does emphasis of voice never cut any figure, where cold print shows none?—St.]

Sometimes bees are slow to take a syrup of pure sugar and water, but will greedily accept it with a small part of honey. In the absence of this, *Le Rucher Belge* advises flavoring the sugar syrup with a few drops of essence of cinnamon, anise, vanilla, or orange flowers. [I never saw the time in our apiary when the bees were slow to take up good pure sugar syrup; but strongly flavored honey, like basswood, for instance, is more apt to call out and start robbing than sugar syrup.—Ed.]

J. C. Davis says in *American Bee Journal*, "A man living 1½ miles from me came yesterday to get me to put 20 colonies or more in his 80-acre apple-orchard for ten days, to fertilize the bloom. He offered 15 cents a colony. I took 10 colonies, but do not like to risk moving many now while they are gaining so fast here." Fruit-growers are learning to recognize their friends.

A French medical journal is quoted in *Revue Internationale* as saying that honey with bread and butter replaces perfectly cod-liver oil. As carbon is the desideratum, it looks reasonable that honey may answer as a substitute without the disadvantage of turning the inside mechanism upside down. [I wish I could believe there is a good deal in this, and hope there is.—Ed.]

Has Rambler been smitten with that dark-skinned maiden, that he dislikes to hear her called "squaw," while he has no compunctions about calling her father an Indian?—p. 433. Is a "squaw" any thing more or less than a female Indian? But I confess that, when he speaks of "the lovely Indian maiden," I think of something a good deal nicer than a squaw. Something wrong with both of us as to our intellectual machinery, Rambler.

"Cell-raising has been going on right along during this spell of cool weather we have been having for the last eight or ten days, apparently, without let or hindrance"—page 437. Now tell us, Mr. Editor, whether the queens are just as good as those raised in warmer weather. [I hardly know. The cells are not quite so long and shapely as those that were built when weather is favorable. In another issue I hope to show you how they look.—Ed.]

Stenog made some statements on p. 386 so dazzling in their audacity that I'm just recovering from the dazed condition into which I was thrown. "If one does not learn to spell when he learns to read he will never spell." As I happen to know that Stenog votes the Prohibition ticket, and that his daily life is entirely consistent with his manner of voting, I can form no possible theory by which so intelligent a man could have made such a statement. The others I'll mention when I'm sufficiently recovered.

"WHEN MY BEES get the *upper* story filled with brood and honey, they are apt to swarm, regardless of room below, either with empty combs or empty frames," says Delos Wood, p. 399. This butts squarely against the Simmins theory, which has held a respectable place in England for years, and is substantially, I believe, that, so long as bees have room to build below the brood-nest, they will not swarm. I have had bees swarm without touching the empty story below; but perhaps it was because there was a big gap to cross between the two stories.

C. PREUSS, in his new book on bee-management, says that he took careful notes in the spring of 1893; and in 33 days, from April 3 to May 5, 29 colonies consumed an average of 11 quarts of water each, the heaviest drinker taking no less than 16 quarts! He thinks it would have cost the lives of many bees to go out after so much water, especially on cold windy days. [There is, no doubt, a good deal in this, and yet for some reason or other the general bee-keeping fraternity has paid but little attention to it. It might pay well to feed simply water every spring.—ED.]

H. W. BRICE says in *Brit. Bee Journal* that post-mortems show clearly that bees and queens are affected with foul brood, so no cure can be effectual that treats brood alone; the colony must be requeened with a perfectly healthy queen. In this view Mr. McEvoy will hardly agree. [Cheshire, Cowan, Brice, and other scientists, say that foul-brood germs are found in adult bees and queens. But we never had a case yet when bees affected with foul brood, and placed on foundation, were not completely cured; that is, there was no further visible evidence of foul brood. If the disease remained in the living organisms of the bees, it did not seem to go from them to the brood. Our own experience is quite in line with that of Wm. McEvoy.

JUNE 5. A superb crop of white clover—never saw it plentier—but can't make out that bees are getting any thing from it. Is this to be another year of failure? [There is a superb crop of white clover around here. When it first came out the bees did not seem to care for it; but now they are busily roaring over our heads, and pouring into the hives There never was a better prospect for clover honey than this year; and basswoods in our vicinity look equally promising; but many of our colonies were too weak to be in prime condition to get the honey when it does come. The severe winter put such a damper on them that they have scarcely recovered from it yet; and this, I think, is the general condition throughout the country.—ED.]

"THE EARLIEST STRAWBERRY" seems to be what you are after, friend A. I. In this "locality" we're after the *latest*. We could buy plenty of strawberries here at three boxes for a quarter (one day five boxes for a quarter) before a strawberry-blossom was to be seen on our vines; but the latest berries find a better market. [Why, doctor, I am after both earliest and latest, and just now our best late berry seems to be the Brandywine. Perhaps it is not the very latest, but it holds its fruit away up out of the dirt. Its color is very beautiful—one of the most brilliant scarlet. It is a big berry, and is, as a rule, beautifully shaped. It is also a large yielder. There are many other candidates for the very latest, but just now I do not know of a better one than the Brandywine.—A. I. R.]

PROF. EATON says in Chicago *Record:* "In England the consumption of sugar is 88 lbs. per capita. In the United States it is about 64 lbs.; but in France it is 31 lbs., in Germany 27, in Austria-Hungary 20, in Russia 11, and in Italy only 4.7. And when granulated sugar is selling retail in the United States at 5 cents a pound it sells in Germany at 9 cents, in France at 10 cents, in Russia at 13 cents, and in Italy at 14 cents. [It would look as if the consumption of sugar were in an inverse ratio to its price, i. e., the greater the cost the less the consumption. Then the question will arise, Does this large consumption in any way affect the consumption of our product, honey? or does the one beget a desire for the other, like beer for whisky? —ED.]

"WE ARE RAISING CELLS in the lower story of the hive with a laying queen," says the editor, p. 401. I've done that (sometimes it didn't work) with the queen in the upper story; but if you mean you do it in the lower story with the queen in the same story, then you're ahead of me. But I'd give a good deal more to know how to keep queen cells out of the lower story when the queen is there. [Yes, we can raise queen-cells in the same story of a brood nest already having a laying queen, long before the swarming season. The queen-cells are reared in a portion of the brood-nest shut off with perforated zinc, the laying queen being confined to the other portion. Of course, the bees have access to both divisions. The whole secret of the plan rests in having the artificial cell-cups perfectly made, and supplied with the royal larvæ and jelly. To make cell-cups that the bees will accept is an art, but not a difficult one. Without the artificial cups, nothing could be done.—ED.]

PICKINGS
FROM OUR NEIGHBORS' FIELDS.
BY STENOG.

'Twixt scalding suns and thunder-showers
The bees are hard at work;
"We'll get a mighty crop" says Drone,
"If none of *you* do shirk."

* * *

AMERICAN BEE JOURNAL.

Mr. W. W. Lathrop, of Connecticut, gives a picture showing some sweet clover 9 feet high.

* * *

Mr. C. A. Bunch, of Indiana, says he has used the Simplicity-Langstroth frame for 13 years, and thinks it is all right for comb honey; but for extracted honey he wants the frame two inches deeper. He finds the frame, as Mr. Dadant says, too shallow. Concerning starters in sections, he says it is a well-known fact that full sheets of foundation in sections do not of themselves secure a crop of honey.

◆

Mr. H. Clute, of Wisconsin, says farmers are just beginning to raise alsike clover there. The bees work on it well. As the land gets cleared up more, so the ground will be warmer, he thinks farmers will get to raising more clover, and then the honey-harvests will get larger each year. Some years ago it was feared by at least a few that apiculture would cease as farming did away with woods and uncultivated fields; but perhaps the contrary is the truth.

◆

Mr. York congratulates Mr. Aikin on his election to office on a temperance issue. He says he himself has not for 15 years lived in a place where laws are enforced, and adds: "Here in Chicago it is almost true to say that only the laws that suit the politicians are enforced. No attempt whatever is made to close on Sunday the front entrances to hell (saloons); . . and it makes no difference which party is in power." Mr. York has struck a "spell" here that I warmly indorse.

◆

Dr. Peiro, after demolishing the old-fashioned "bussing-bee," now attacks the practice of hand-shaking. The complainant avers: "Here comes a man with whom you shake hands. In a week or two your hands begin to tingle, and soon you find you have caught the itch. This you generously give to your family and friends, to keep them busy scratching. Eczema is often contracted in this way." The doctor certainly deserves a vote of thanks for his timely warning. Shake, doctor.

◆

A grocer in Clark Co., Wis., lets honey candy in the barrel; then he sets the barrel on a table in the front part of the store, cuts off the hoops, and then pulls the staves off. Thus a solid mass of honey is left exposed. Customers inquire what that chunk of honey is When informed that it is honey in a candied state they buy liberally. The grocer slices it off the top like cheese. One grocer sold one barrel of it in a week at a profit of 4 cents a pound. Others grocers sold, in the old way, only a barrel or two all winter.

◆

Mr. C. A. Montague, writing from Northern Michigan, says crimson clover fills the blank between fruit-bloom and the other clovers, and is worth all the other clovers combined. Last season, from that one source, his stronger colonies filled a super holding 8 L. frames. This was before any of the other clovers were in bloom. Speaking of milkweed he calls it his old standby, it having failed but once in nineteen years. He gets from it from 75 to 150 lbs. per colony. He thinks putting the average yield from milkweed at 100 lbs. per colony is a very moderate estimate. A total failure in his locality, Grand Traverse Co., is unknown. His average for 1896, 1897, and 1898, was 150, 129, and 131 lbs. respectively.

◆

W. A. Pryal describes the century plant, and gives a picture of one. For rapidity of growth it seems to be a fair rival of Jack's bean-stalk that we used to hear of when we were very young. The plant in the picture seems to be about 30 feet tall, and yet it grew in a few weeks. Mr. Pryal is sure it will often grow more than a foot in 24 hours. He noticed the bees on a fallen plant, and observed the flowers at close range. The bees tumbled over each other to get the nectar. The quantities secreted were great, and Mr. P. says he never saw any thing like it before.

◆

AMERICAN BEE-KEEPER.

Dr. Miller thought Mr. Manum had made a mistake in saying that he had to feed 727 colonies $2100 worth of sugar, or 80 lbs. per colony. Mr. Hill says there is nothing extraordinary in the consumption of that much sugar per colony, during the breeding season.

◆

The editor says a section of honey in which pollen is contained should never be crated for market, as experience has taught that the eggs of the wax-moth are very liable to be present in cells of bee-bread. Owing to the opacity of the mass, its presence may be readily detected by transmitted light.

◆

Mr. Hill is inclined to resent the imputation that bee-journals owned by supply-manufacturers are unduly biased in favor of their own wares. He says he has had charge of the *Amer. Bee keeper* for sixteen months, and yet the W. T. Falconer Co. has never given him a single suggestion regarding the goods they make.

◆

In denouncing the clipping of queens, Mr. Hill says Willie Atchley, in the *Southland Queen*, "becomes so completely lost in a veritable labyrinth of sentimentalism as to lose sight of the purpose for which bees were created. He evidently considers it a great sin to thus mutilate a queen. Perhaps it is this sublime sentiment, voiced by Mr. A., that dictates the course of so many brethren of the Southwest in refusing to permit their hair to be cut."

◆

The editor hopes GLEANINGS will early decide to come out openly in favor of giving the giant bee a thorough test in America. The trouble is, the test is altogether dependent on the consent of dorsata itself. "Barkis is willing' " on this side, sure. As will be seen in another column, they tried to "raise the roof" of the house when Mr. Rambo tried to show them the benefits of "assimilative civilization."

◆

The editor, Mr. H. E. Hill, has forsaken the quiet life of the editorial tripod, and his address will be, in the future, Stuart, Fla. He says, "We prefer active life among the bees, and, therefore, have exchanged the cushioned chair and office conveniences for the open air in a primitive and tropical country." He does not intend to give his journal any less attention than formerly, but believes he can add to its usefulness by the practical work in which he is about to engage. He may extend his travels to Cuba, taking his camera with him. Mr. Hill's work will be observed with interest.

Mr. Hill has had an invitation to visit Dr. Viete, of Cienfuegos, Cuba. Dr. V. harvested 180 tons of honey in one season.

Our Symposium.

LARGE HIVES.

Egg-laying Capacity of Queens; Large Hives Practically Non-swarming; the Proof of the Pudding is in the Eating.

BY CHAS. DADANT.

Yes, I made a mistake in figuring the number of cells in a Gallup comb. I hope that my readers will excuse it by remembering that, when we get old, our faculties decrease in proportion with the age. But this mistake does not annul my arguments. A hive with 9 Gallup combs, i. e., with 57,294 cells, to receive the eggs of the queen, or, rather, with 51,000 cells for bees, needs at least one comb to receive the food, honey, and pollen; has room for but 2400 eggs per day, while a good queen can lay more than 3000 eggs daily.

To ascertain how many eggs a good queen is able to lay, I did not confine my observations to the number she can lay in one minute, but I computed the number of square inches occupied with brood at the same time, in several good colonies; and in multiplying this number by 55 I found about from 70,000 to 80,000 having eggs or brood. This number, divided by 21, the number of days a cell is occupied, gave me from 3300 to 3800 per day. Of course, such experiments can not be made with the nine-frame Gallup hive.

"But," says Mr. Doolittle, "if a queen lays 6 eggs in a minute, 360 in one hour, 3600 in 10 hours, why does she not lay 8640 in 24 hours, and 181,140 in 21 days?"

I wonder why Mr. Doolittle asks me such a question. Does he ignore the fact that no animal can work 24 hours without rest? He does not ignore the fact that the queen is nursed by the workers, which, when she approaches them, turn their heads toward her, as is shown on the first page of the Langstroth book, and that the bees in front stretch out their tongues to offer her some food. Of course, during winter and during cold days the queen is about motionless. She begins to move in winter as soon as the weather is warmer; then the workers offer but little food, for their stomachs are about empty; but as soon as they can fly a little outside, the number of those that meet the queen increases. She eats more, begins to lay, and her laying capacity increases in proportion to the gathering of honey and pollen, and to the increasing number of bees working outside, which do not work 24 hours daily.

Then Mr. Doolittle says, "Bro. Dadant gives an instance where a colony in a large hive gave him 160 lbs. of comb honey which he sold at 27 cents a pound, the result of which would be $43.20. In back volumes of the bee-papers can be found my report of a colony that gave me 309 lbs. of section honey, and plenty in the hive for winter." I can answer that this quotation of mine was not made to show the largest crop we had obtained from a single hive, but to show that this colony, in a large hive, strong in bees in March, gave me better results than the smaller ones could give. In narrating my purchase of this large hive my object was to show that I had not made a mistake in buying it for $7.00 while the small ones were sold for $3.00 or $4.00. I may add that we have never, except in this case, weighed the crop of our bees; as, in good years, we harvest our honey several times in summer, we do not take the trouble to note the quantity given by every colony as Mr. Doolittle does.

Our crop of honey from each colony can not equal the crop of Mr. Doolittle, for we have only white clover, and occasionally fall flowers, while he has a quantity of lindens around his apiary.

Our large hives do not give us as much work in summer as the Gallup hive, for we have very few swarms. Our home apiary, numbering 80 colonies, did not give us ten natural swarms in three years; while I see in the *Progressive Bee-keeper* for January, 1898, p. 20, that Mr. Doolittle had 548 natural swarms in the same spring, from 49 colonies.

In our Langstroth Revised, page 237, we give a letter from a bee-keeper in Indiana, who, in 1883, had 505 swarms from 165 colonies. We reproduced this letter because we thought that such a rate, of three natural swarms per colony, could not be surpassed; but Mr. Doolittle, with his 7 natural swarms from each of his 49 colonies, as well as in the production of honey, can not be equaled by any bee-keeper.

Mr. Doolittle says that "the proof of the pudding is in the eating." But a struggle for superiority between two cooks can be solved only by the eaters. My readers saw in GLEANINGS for May 1, page 344, the offer of Mr. Draper in favor of the large hive. Besides, in the *Amer. Bee Journal*, May 11, page 292, Mr. W. H. Eagerty, of Kansas, writes: "From actual use of both large and small hives I will take the large one every time."

If Mr. Doolittle thinks that these opinions are not sufficient I will give that of another bee-keeper, who says, in the *Progressive Bee-keeper* for November, 1897, page 296, "In July, 1877, I had a colony in an especially long hive constructed for an experiment, containing 32 frames which had, as nearly as estimation could get at it, 99,500 bees. This colony gave 566 lbs. of surplus honey that season." Signed: G. M. Doolittle.

I do not think that I have any thing to add to such a quotation.

Hamilton, Ill., May 15.

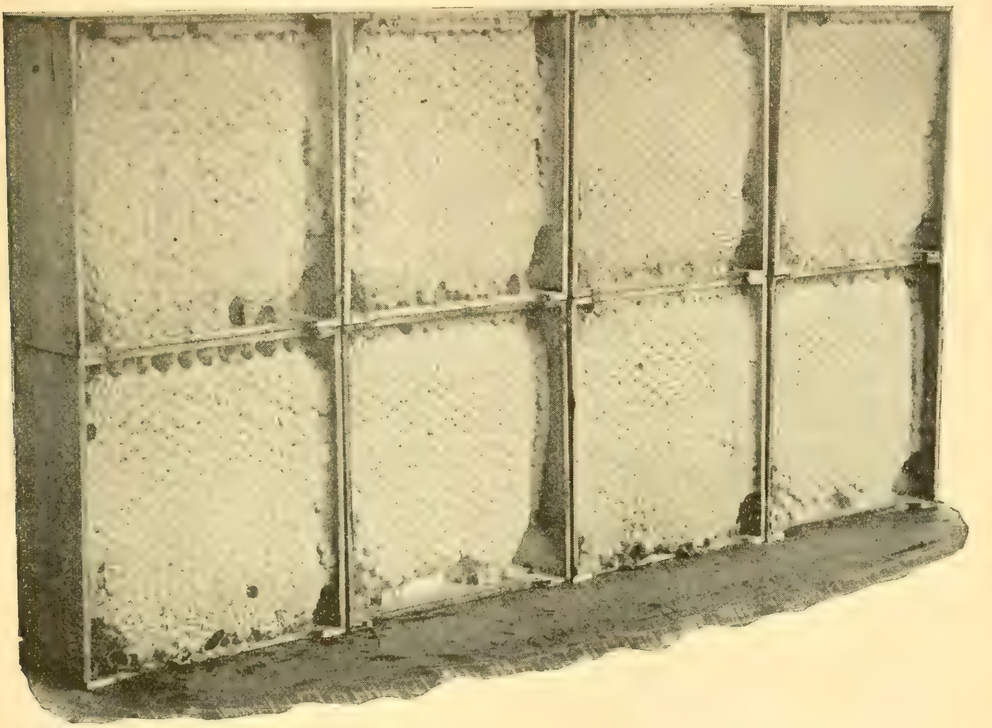
[Shortly after the receipt of the foregoing there came an article from A. N. Draper. As this is in line with some of the arguments put forth by Mr. Dadant, we give it right here.—ED.]

DRAPER'S BARNS.

Large Hives for Wintering.

BY A. N. DRAPER.

Who ever before heard of a man wanting to carry his "barns" into his cellar? I never did. Please do not try it, Dr. Miller. I'll tell you a good deal better way, and, also why it is better. The proper place for those barns is on their permanent summer stands, with a regular winter-case around them. As it is necessary for the barn to be warm and well packed for February, March, April, and May, to secure the best results this packing should be done in November, when it is convenient to get the leaves for packing. If properly prepared for spring there is no trouble about their wintering, as your barn has from 40 to 60 lbs. of honey, a good vigorous queen, and a populous colony of bees in it. I quote from Dadant's Langstroth Revised, p. 328, Art. 625 :



SEPARATOR AND NON-SEPARATOR HONEY. SEE EDITORIALS.

> Some 18 years ago, in an apiary away from home, where we were raising comb honey, we had a number of swarms, which, in the rush of the honey crop, we did not examine until their combs were built. At that time the triangular bar was the guide principally used, and the combs of some of these swarms were joined together in a way that rendered the frames immovable. In the fall we extracted from the brood-chamber of nearly every colony, as was then our practice, leaving only seven Quinby frames on an average for winter. The colonies that had crooked combs were left with all of their stores—ten frames (take notice, Quinby frames), because we could not disturb them without breaking combs and causing leakage and robbing, and it was not the proper season to transfer them. These colonies did not have to be fed the following spring, became very strong, and yielded the largest crop. This untried-for result caused us to make further experiments, which proved that *there is a profit in leaving, to strong colonies, a large quantity of honey, so that they will not limit their spring breeding.*

Page 333 :

> If the colonies are to be wintered in the open air they should all be made populous, and rich in stores, even if to do so requires their number to be reduced one-half or more.

Art. 632 :

> *Small* colonies consume, proportionally, *much more food* than large ones, and then perish from inability to maintain sufficient heat. Bees in small or contracted hives, etc., have too scanty a population for successful wintering, especially out of doors; for as it is by eating that bees generate warmth, the abdomens of a small number are soon filled with residues; and if cold continues for weeks the bees get the diarrhea. We have often seen colonies in small hives perishing side by side with large ones whose bees were very healthy. . . . Such facts abound, and we have but to open the bee-journals to find confirmation of our statement.

Page 334 :

> In the *Amer. Bee Journal* for February 8, 1888, page 83, Mr. J. P. Stone, of Holly, Mich., asks why a colony, which was hived in 1859 in a large box, is prosper-

ing yet. while others have perished. The size given, 16x16x22, which shows that the box has twice the capacity of an eight-frame Langstroth hive, answers his question.

In the following number of the same journal, page 107, Mr. Heddon mentions a colony which had wintered safely for seven years in a box ten times larger than the Langstroth, while many others died by its side. The colony, when transferred, contained about double the number of bees usually raised from one queen.

Page 338 :

Mr. E. T. Sturtevant, of East Cleveland, Ohio, widely known as an experienced apiarist, thus gives his experience in wintering bees in the open air :

"No extremity of cold that we ever have in this climate will injure bees if their breath is allowed to pass off, so that they are dry. I never lost a good colony that was dry, and had plenty of honey."

This is no fad. Twenty-five years ago the editor of GLEANINGS recognized the necessity of a warm hive in early springtime; see GLEANINGS, 1874, page 38.

That a few inches of chaff, straw, or old clothing, around a hive is no positive protection, we think is *generally* admitted.

From the March number, 1874, page 30, we quote :

Feb. 16.—We have just purchased two loads of coarse fermented manure at the livery-stables.

On page 38 we quote :

From what experience we have had, we should feel safe to risk the bees under half a wagon-load to each hive.

March 2, page 40:

We are so pleased with the manure protection that we have put our fifty hives on their summer stands, and are making manure-heaps over them as fast as possible.

I suppose he found later there was too much moisture, and perhaps abnormal heat was not just the thing. But, to return to Dadant, page 340 :

To show the advantages derived by the bees from a winter flight we will give our experience during one of the coldest winters—that of 1872-'3. From the beginning of December to the middle of January the weather was cold, and the bees were unable to leave the hive. The 16th of January was a rather pleasant day. We took occasion of this to examine our weak colonies, being anxious in regard to their condition. To our astonishment they were found alive, and our disturbing them caused them to fly and discharge their excrement. Being convinced that all of our bees were safe, we did not disturb the strong colonies, and a few of the latter remained quiet. The next day the cold weather returned, and lasted three weeks longer. Then we discovered that the weak colonies, that had had a cleansing flight, were alive and well, while the strong ones, which had remained confined, were either dead or in bad condition.

I have made a practice, for a number of years, of taking off the outside packing-case containing the leaves when the warm days would come after the bees were confined for some time by cold weather, and turning the winter-case, containing the leaves, upside down so that the sun and air would warm them up as well as to give the bees a cleansing flight. Now, then, those leaves get warmed up through and through, and the case is returned to its place before it gets too cool in the evening. With a good strong colony of bees in the "barn," is it not plain to you that the leaves will keep the barn warm, as well as the bees and all of the honey? The leaves, after getting warmed up, will hold the heat that the bees generate, and sunning and airing both the leaves and hive seems to start the bees to rearing brood with a rush.

To sum up the whole thing in a few words : Other things being equal, with a large hive there is no need of feeders, no need of cleaning bottom-boards in the spring, no need of spreading brood, no fear of their starving in the spring, no use of lugging them in and out of a cellar for winter; and whenever there comes a honey-flow they are ready for it every time.

Upper Alton, Ill., May 24.

[Now comes an article from the "other side." Just read.—ED.]

SMALL HIVES FOR COMB HONEY, AND WHY.

A Strong Article.

BY D. N. RITCHEY.

As there has been much said in favor of large hives of late by Mr. C. P. Dadant and a few others, I want to say that nine out of ten beginners who would follow Mr. Dadant's advice would fail, and lose all they had put into the business, and give up in disgust. I wish to say all that I do with all kindness for Mr. Dadant. In the first place, Mr. Dadant can not give a fair statement, because he says, Sept. 15, 1898, page 683, that he has never tried the small hives—at least not less than ten-frame, which is not a small hive for this climate, by any means; so how can he judge? I want to be as brief as I can with this article, as I believe all articles should be, and then readers of GLEANINGS would be glad to see them—at least that is my idea. What I tell you in my argument are facts that I have gathered from 32 years' experience, many experiments, and an outlay of several hundred dollars, and an experimental knowledge of the bee-business.

I have no doubt Mr. Dadant has produced large yields of honey with his large hives ; but I believe he could have done better with smaller ones. I will admit there are a few localities where a large hive would give better results in extracted but not in comb honey. We must remember that the most of our large comb-honey producers use small hives. I have this day examined some of my bees, and find that the bees in six-frame hives are storing honey in sections while my nine-frame hives have not an ounce in the supers; and if it were not that I have a field of buckwheat almost in full bloom I should have to feed my colonies that are in large hives, to keep up brood-rearing so I could have a large force ready for white clover.

I write these articles with the express purpose that others may not have to pay out the amount of money that I have, and spend the time I have, to learn what they must if successful in the bee-business. In my next article I will give the proper size of hive for this climate, and give good reasons for it.

Mr. Dadant, Sr., says on page 258, Apr. 1, that a queen does not lay at will. I am not "Baptist" enough to swallow that.

Before I close this article I should like to give Mr. Dadant, as advocate of large hives, and Dr. Miller and others who are on the fence, a problem I solved long ago: Take two colonies of bees and give them a good queen and 30,000 workers each, in two small hives, and take one colony, good queen, and 75,000 workers, in a large hive, and see which will produce more comb honey in ten years. We must remember the keeping of bees from the standpoint of dollars and cents.

Granville, Ohio, April 22.

[There is just one point in this discussion that I wish to refer to; namely, that you say Mr. Dadant can not give a fair estimate because he admits he has never tried the small hives—never any smaller than ten-frame. Perhaps there is something in this; and on the other hand are you not committing the same error in making a comparison between your six and nine frame hives, with the difference in favor of the six? Mr. Dadant will now have a right to say that *you* never tried a *large* hive, and that, therefore, you can not make a "fair statement." In making these comparisons we should make a sharp distinction between a ten-frame Quinby as the representative of a large hive, and an eight-frame Langstroth as the representative of a small one. It is true there are hives or brood-chambers as shallow as the Heddon, but they are generally used in pairs, so that, after all, a hive of the eight-frame Langstroth capacity may be considered a small one.

The following letter is a private one; but I obtained permission of Mr. Poppleton to give it to the bee-keeping world, as it contains much matter of interest, especially in this direction.—ED.]

THE LONG-IDEA HIVE.

One Brood-nest Holding 24 Large Frames; a Hive for Extracting, and a Hive for Comb Honey.

BY O. O. POPPLETON.

I have been much interested in all that has been published for a year or two past on the large-hive question. My own ideas and practice are in line with nearly all of Mr. Dadant's ideas. I am glad to see that you are going to test the larger frame and hive; but, while about it, why not also test the large frame in a single story—that is, a few of them, that will take, say, 24 combs each? The frames I use are 12 in. square inside; but if I were to start over again all new, I would keep the same depth, but lengthen the frames two inches, which is about half way between my frame and the one you are going to test.

In your editorial on p. 345, you say, "While I believe in large colonies I do not see how it makes any difference whether they are in one or two brood-chambers; but perhaps it does." "The proof of the pudding is in the eating thereof," not in the theory about how it should be made.

Bee-paralysis was an important factor those two years. My own personal experience of 30 years in bee-keeping, two of them in Cuba, with 400 to 500 colonies in tiered-up hives, has fully convinced me that, for some reason or other, large colonies in single brood-chambers *do* give better results, even if we can't see the reason. There are objections, of course, to the single-brood-chamber hive, but they do give better results, so far as extracted honey is concerned, at least.

The hive first devised by Mr. Langstroth, nearly 50 years ago, has not been improved on so far as shape and proportions of frames are concerned, for the production of comb honey; but the production of extracted honey is so different from that of comb honey that it is doubtful if the same style of hive and frame can be the best for both.

This letter isn't written to call your attention in the least to any of my own methods, but to encourage you to make full experiments in the new frames, and methods of using them; and don't reach any conclusions, as Mr. Doolittle did, after the use of only two hives for a season or two. Conclusions formed after such a limited test are practically worthless.

Stuart, Fla., May 27.

[When Mr. Poppleton called on us two years ago we talked over this matter considerably, at which time he voiced substantially the sentiment expressed in the letter above. I could not see *why* a Langstroth frame would not be equally well adapted for both extracted and comb; but, as he says, it is not a matter of *seeing*—it is a matter of the *proof of the pudding*.

One thing seems to be very clear—that is, if our orders are any criterion to go by: The ten and twelve frame Langstroth is gaining favor among the extracted-honey men of the South, and the eight-frame size is preferred by most of the comb-honey producers in the North. Of course, there are a good many exceptions to both. Some comb-honey producers will have nothing less than a ten-frame hive, and some extracted-honey men prefer two small brood-chambers, frames of Heddon depth.

After all, the proposition simmers itself down to this: Can we make *more dollars* in our locality with a large hive than with a small one? This same proposition may be varied somewhat this way: If the Langstroth hive, eight-frame size, is the proper thing for comb-honey production, is the large hive with large frames the best suited for the production of extracted? Here are two propositions that will bear discussion. From the amount of correspondence and inquiry already in it, would look as if a large portion of our readers, at least, still consider this old subject a live one yet. Indeed, quite a few are ordering "Draper Barns" to test alongside of the standard eight-frame Langstroth hives.—ED.]

THE BARBER PLAN OF FORCING BEES INTO SECTIONS, AGAIN.

The Way it Works, and the Quality of the Honey.

BY MRS. A. J. BARBER.

I don't know whether it's the proper thing for a little bee-keeper, and a woman too, to talk back to so big a man as our Dr. Miller;

but I should just like to say, in reply to his comment (page 342) upon my method of getting bees started in sections, that I have tried bait sections, and find that usually the bees will fill them and leave the others untouched.

Now, what I am going to say will probably be considered a heresy; but it is a fact that I prefer the small combs *because the queen will lay in them.* When a super of combs is put upon a good hive of bees they will rush the honey from the brood-nest into the small combs. Usually the queen, after filling the empty cells below, will get into the super of combs when it is almost full of honey. She does not have room for much brood, but we generally find a few patches of eggs and larvæ when we raise the super to put in sections. We smoke the super well so that the queen goes down before raising it, and she does not trouble it any more, as the sections are between her and the super, and she won't go through them.

I used to think that brood above my sections would ruin them, but I know better now. I suppose if we left the queen in the super, or if the super were full of brood, the quality of the section honey might be impaired.

All of my honey last year was produced by that method. Just after I had put a lot upon the market last fall in Durango there was a grand fair or exhibition of the products of Southwestern Colorado, Northern New Mexico, and Eastern Utah. The man who handled my honey, wishing to add to the display, entered a lot of cases of my honey, and got the second premium. The honey was an average market lot, and I did not know that it was on exhibition until notified of my premium. I mention this to prove that the quality was good. We have a fair demand for extracted honey, and wax and vinegar; and, considering the cost of putting into packages for market, it pays better than comb honey, especially when we can get several hundred pounds extra while coaxing the bees to work in sections. With the present low prices we have to consider every thing, and find the big products of extracted honey (wax and vinegar) go a long way toward paying for the cans to put up the crop.

Mancos, Colo., May 13.

[I am becoming more and more convinced that this is the way to produce comb honey. The ordinary method of putting a super of sections on to the hive direct often results in loss of time—two or three days, and possibly a week. The bees apparently do not quite like the upstairs arrangement, and, as a consequence, fritter away for several days, trying to decide what to do. Valuable time as well as honey is lost. By putting the shallow extracting-super right on the hive in the first place—that is, at the *beginning* of the honey-flow—we get the bees into the upstairs fever. After they get well agoing in the shallow combs, lift them up and put a comb-honey super under them, and, presto! what a rush there will be for the sections! I have tried it myself just enough to know that there is no jugglery about it; but that, in our locality at least, good results may be secured; but because I thought I was almost alone in the matter I did not say so much about it. Of course, after the bees once get to work in the sections it is not necessary further to put on extracting combs.

The Barber method seems to be so practical that I have incorporated it in the new edition of our A B C of Bee Culture.

Hello! here is another subscriber who knows that the plan is not all theory. Just read what he says.—ED.]

PRODUCING BOTH COMB AND EXTRACTED AT THE SAME TIME.

By his Straw in GLEANINGS, p. 386, I am glad to see Dr. Miller has done some figuring. He is almost persuaded, and with a little actual experience he will become fully so. The first three years in bee-keeping I produced comb honey exclusively, extracting only from the unfinished sections. Last year being poor in promise, I put up eleven supers of extracting-frames filled with extra-light brood foundation, wired, for ten-frame hives. From these eleven supers I extracted 316 lbs. of honey which I sold at from 13 to 15 cts. net, according to package—four-quart granite pails containing 10 lbs., $1.45; two-quart, 5 lbs., 75 cts.; 1-qt. fruit-jars, 3 lbs., 50 cts., and 1-lb. bottles with labels, 20 cts., all in the home market, and to friends in adjacent towns. Had my crop been multiplied by 5 I should still have run short. In November it candied, and I gave a jar to a poor German shoemaker, who declared with many strong expressions it was the first honey (bee's honey) he had seen in this country. His wife took all I had, and wanted more for her friends. She sold it at 60 cts. per 3-lb. jar.

I had no idea there was so much filth in good clean comb honey until I melted down 14 sections and found the wax full of propolis and impurity. By the way, 14 Danzy sections gave me just 3 oz. of wax, 11 lbs. of honey, and ¼ oz. refuse. My average of comb and extracted per colony last year was 43 lbs. I had 11 swarms, only one from a ten-frame hive. After cutting out queen-cells and placing the old hive in a new location, I gave them a super with extracting (5-inch-deep) frames. They were handsomely filled and capped, and gave me 25 lbs. of extracted honey. The other old colonies stored but four or five pounds in sections. B. F. ONDERDONK.

Mountain View, N. J., May 23.

* * *

THE SOMERFORD METHOD OF FORMING NUCLEI.

How to Examine a Young Queen in a Queen-cell; a Suggestion to Fred L. Craycraft; Foul Brood in Cuba; How did it Originate?

BY W. W. SOMERFORD.

Dr. Miller:—I see in one of your Straws for April 15, that you always supposed that your queens were the best reared as I describe in an article on expansion, page 160, April 1st GLEANINGS. I will say that I adopted the plan of increasing and queen-rearing, previously described, eight years ago, in Cuba, while handling 400 and 500 colonies in one apiary where foul brood was plentiful, and I got fine queens, and have used the plan ever since; and for fine queens I think I get the best that can be had, for the labor given, if not the best ones that can be had with more elaborate manipulation. Any way they give entire satisfaction, and have for years. They seem to me to be as good as queens reared by the Doolittle plan, except at times just after a honey-flow. Then I have to do considerable culling in order to get large ones that will *mate quickly;* and *quick mating* I believe to be the *best evidence* in regard to the quality of a queen. If she begins laying very young I know I've got a good queen, without even seeing her.

By the way, while on the queen subject, I will mention a plan adopted while handling hundreds of foul-brood colonies; that is, to make a cut across the base of each queen-cell with the little blade of a sharp cell-knife, cutting across the cell; and while the knife is in the cut I tip the blade enough to open the incision sufficiently to take a good peep at the royal inmate, to ascertain whether or not she is all right as to size and shape, and stage of development as well, before inserting her in the hive that she is to be the future mother of. By thus doing you will often save the expense of having to hunt up a worthless queen that has failed to begin laying at the proper age.

As to closing up the cut, or peep-hole, you have made in the cell, that is easily done. Mash the cut nicely together, then seal with a hot smoker. The bottom seam of the fire-box is best. With it, one delicate touch or two will do the job up so nicely that the bees never bother the scar on the cell.

The plan above is essential in handling cells reared in foul-brood apiaries, for at least half of them are only empty coffins with decayed bodies in them, instead of live queens. Dr. Miller, the race of bees has possibly more to do with "nine-tenths of them returning to the old hive" than location does, possibly. I have received comments on my expansion article, from Waco, Texas, to Oregon, and from Oregon to Pennsylvania, and a good many of the writers seem to be delighted with the expansion letter on page 160, above referred to, and say it is the best that they have ever seen on forming nuclei. One bee-keeper is obliging enough to send me his plan of forming nuclei, with drawings to illustrate; but boiled down it is simply this (and it may prove valuable to many): Arrange your *empty hives* around the colony to be formed into nuclei, in a circle (horseshoe-like entrances to the inside); then divide the parent colony into the seven or eight hives standing in the horseshoe circle. Divide equally if possible, then move the old hive clear away, and the bees, says the writer, will keep about equally divided; and if too many should get into one hive, trade places with the weakest one, and continue swapping enough to keep them about even in bees for a week or so.

As to queens for his plan, he says you can use any method you prefer for your cells. I would give the writer's name, but I gave his letter to one of my bee-boys, and it is now out of pocket, to my regret.

I am glad to see that Rambler, No. 165, has stumbled on to *another remedy* for foul brood, and hope it will prove very valuable; and as you ask for some one in position to try the plan, I can name the young man, and he is one of *ability too;* and, besides, he is no other than our friend Mr. Fred Craycraft; and for his sweetheart's sake I am sure he will do his best to make the plan a success, as her papa's bees are in a terrible condition, *all* being rotten with foul brood. Now, Fred, I know you will excuse me for the joke; but as the old gentleman has only 30 hives, and they in almost a garden of Eden, when it comes to beauty, shade, and a variety of vegetation, just think of 31 rows of sugar-cane containing 31 distinct varieties. Such a *lovely* place to try an experiment! and such delightful surroundings that I am sure Mr. Craycraft could cure all thirty of those infected colonies, and thus demonstrate the real value of the Rambler's foul-brood remedy.

I see from Mr. Stachelhausen's note, page 315, that it is very probable that Mr. Pedro Casanova was mistaken in saying foul brood came through Mr. Jones, from Canada. He says Dr. Dzierzon, in 1848, infected his apiary with the disease by feeding Cuban honey. It is very probable he is correct, as foul brood now is thoroughly scattered over Havana Province. I have known over a thousand colonies to die of it in that Province in the last ten years, and on my last trip I saw more than one apiary so badly affected as to be worthless when it came to storing honey.

As to curing the disease in Cuba, I will tell soon what I know about it.

Navasota, Tex., Apr. 24.

EXPERIENCE IN WINTERING.

BY HARRY LATHROP.

The past winter has been one to test our methods of wintering bees quite severely. My loss is about 12½ per cent, including some that were wintered outside with no protection except dry packing on top. These were in two story Dovetailed hives with plenty of sealed stores in the upper story, front end of hive raised up from bottom-board one inch by inserting little blocks so as to leave a deep entrance in front, a long V-shaped opening on each side, and bottom sloping so as to carry off water.

There was so much said last year by Dr. Gallup and others about wintering in cold climates, with no protection, by having large free entrances, that I was induced to try six colonies that way. Three of them lived through and are in good condition; the other three are stone dead, with no lack of honey.

I find it is necessary to remove the covers from Dovetailed hives while in the cellar, and substitute quilts, even with a deep space under the frames, and a large entrance; otherwise moisture will accumulate in the hive. While

Langstroth hives winter all right with honey-boards sealed down, I think the reason is because the Dovetailed-hive covers are painted two or more coats, which renders them non-porous, while the Langstroth honey-boards are not painted. The experience of the past has taught me that it is bad practice to put into winter quarters any weak colonies or those not having the proper amount of stores, as they are most sure to die after using up what honey they have and leave the combs in a miserable condition, if not entirely ruined. I think it is best to unite such colonies to others, or destroy them, and put the clean combs away in a safe dry place, and in the spring they will be found in the same condition as when put away. If I had not tried the past season to winter a number of such light colonies my percentage of loss would not have been over half what it was, and I should have avoided a lot of nasty work in cleaning up combs and hives.

Now that the bees are on their summer stands I am reminded that I do not like the Dovetailed-hive covers for the spring period. They do not make the hive tight and warm, and there is no chance to use a cushion or quilt under them. I have been thinking of making some sort of rim, with a lap joint, to place on the brood chamber. You will say, "Place an empty super on." Yes, but that does not make a tight water proof joint. With a deep cover having a lap joint, two sheets of newspaper can be laid on the brood-chamber and the cover crowded down over them, making every thing tight and warm. If newspapers or quilts are used under the flat covers it leaves no bee-space above the frames; and the quilt or paper will absorb moisture from the outside, and become wet and cold. I should like to know how others manage this during the cool weather of spring.

Browntown, Wis., April 21.

[Dr. Mason always winters his bees in the cellar with a cushion on top, and he brings them through the winter successfully every winter, if I mistake not. Yet the majority use and recommend sealed covers—painted covers at that. We do not winter enough in the cellar to form a correct opinion on the matter.—Ed.]

APIS DORSATA.

Caught, and Gone Again; the Giant Bees not Willing to be Confined to Hives; their General Appearance much like that of Italians, only Larger.

BY W. E. RAMBO.

I am sending you to-day by express a bottle of *Apis dorsata* in alcohol. I believe you will find both drones and workers, but no queen. I have done my utmost to get you a queen, spending the best part of two nights up in trees for that purpose. I wrote of catching one swarm. The queen did not appear to be in the bunch I got, although a fine lot. If she had, I have hopes that all that could have been accomplished in any way would have been done with that swarm, for there was brood that hatched out several hundred healthy bees; but having no queen, and coming out too late to make one, they all dwindled and perished.

One week later I found another colony, hived them, getting all; but the next day they left the hive and brood comb, and settled in the roof of the building, apparently as if to build a comb. I watched the result; and one morning about two days later they had absconded. Before hiving them I tried my utmost to find the queen. But the bees were several thick, and she was not to be seen. So I am nowhere in particular. I know of two more swarms, but I fear I shall not just now be able to inspect them. May 1 I go to the mountains for a month, and have hopes of reaching something definite there.

I have read the letter in Mar. 15th Gleanings from Mr. John C. Uglow. If I have *Apis dorsata* he has something else, judging from his description. I have not seen an Italian for a long time; but from what I remember I should say the *Apis dorsata* worker is as much like an Italian as possible. It may be somewhat larger; but it is not black, glittering, irridescent, nor wasp-like. I think if some of you queen-breeders were to find an *Apis dorsata* worker crawling in among your hive bees, you would catch it up and send it off with the next order on your file for a fine three or five banded queen. That is my impression as I sit with a brood-comb on my table, with the remnant of my catch forlornly crawling about it.

The bees act very much like Italians. I do not think them more fierce. Of course, they will fight if fought. But they would not be much if they did not. I have now no more time. Please send several queen-cages. None were in my outfit.

Damoh, India.

[There is no question but, from your description, you have found the genuine *Apis dorsata*. Those that I have seen in alcohol tally almost exactly with what you say of them. In fact, if we could have typical three-banded queens, a whole colony of them, we should have, as you say, what would look very much like Italians.

Indications so far seem to point to the probable fact that *Apis dorsata* can not be successfully domesticated. If this should prove true, it would render a government expedition after them almost a fruitless venture. Even if the bees are once secured and brought to this country, what can we do with them if they have the wilds of the forests in the South? I can not think they would do any harm, even then, and might possibly be worth something, even if they were forty feet in the air, on an overhanging limb.

From all accounts that have so far been rendered, it appears that the giant bees are very gentle, and easily handled—as much so as Italians; and the fact that Mr. Rambo, almost an inexperienced bee-keeper, has been able to do with them what he has, shows they can not be so very vicious.

We are sending Mr. Rambo the cages, and are going on just the same to get the bees if possible. If we can not secure them by mail we will have little hives made, and see what we can do about getting them by express. In the mean time Mr. Rambo will doubtless get into communication with other missionaries who will be able to give us some valuable assistance.—Ed.]

RAMBLE 169.

In Seattle, Washington.

BY RAMBLER.

When I walked up the street from the wharf in Seattle, arm in arm with—my bike, I was not long in discovering that I was in a city with more than ordinary snap and enterprise. The crowd of people on the streets, the jam of vehicles, and the clang of car-gongs, reminded me of the city of the angels in our lovely southland; and, though the skies were overcast with clouds, my first impression of Seattle was good; and with the first effort I made for a headquarters I dropped into the Olympic, a temperance house on a busy public square, and for a temperance house it had the remarkable feature of being run by a one-eyed Irishman. The remarkable feature, of course, was the one eye.

I discovered, soon after arrival, that the steamer for San Francisco had sailed that morning, and the next would sail in five days. To make matters more enjoyable, the sun came out the next morning, dispelled the clouds and the gloom of mist and rain I had endured in Salem, Portland, and Tacoma, therefore if I seem to prefer Seattle to all of those cities, attribute it to the sunshine.

Seattle is a picturesque city. The contour of the land as it rises from the sound in a series of heights and bluffs results in terraced streets much like Tacoma. From the upper portions of the city there is a fine view of the sound, its shipping, and the surrounding country. All of these northern cities have a particular grand mountain over which they exercise an ownership, and to which they point the finger of pride; so the proud fingers of Seattle point to Mount Rainier, 14,000 feet elevation, and always wearing a white cap. Seattle is also a hustling place, for in less than 20 years it has grown from a small town of a few hundred inhabitants to a city of 70,000. Other cities go to great expense to create artificial lakes in their parks, and which, after all, are mere ponds; but here in Seattle are several pretty natural lakes, and bordering upon the east side of the city is Lake Washington, 20 miles long and 5 in width, a beautiful sheet of water with many islands dotting its surface.

This city, like Tacoma, has fine wheel-paths; and after we get up some of those terraces and out of the business portion of the city, we find a portion of a certain street reserved for a wheel-path. A space about four feet wide is laid off from the curbing, and nicely rounded up with gravel. This follows one street and then another until it runs out into the country. Still it winds along, following the indentations of the hills, now into a gorge where immense trees throw a deep shadow. Here is perhaps a rustic bridge, a little stream of water tinkling from a cooling spring. Then we whirl around fern-covered banks, or out on a bluff where, like a vision from fairy-land, there bursts upon the eye a sparkling lake, beautiful islands, evergreen forests. Away yonder is a little steamer laboring toward an island; here the white wings of a sail-boat with its jolly crew; in the distance the snow-clad Cascade range of mountains, the home of the fir and the pine. Ten miles of this varied experience, and at every turn new vistas and new beauties, I would fain wheel on and on for ever, but have to halt at one of the pleasure-resorts on the shore of Lake Washington.

A WHEEL-PATH UNDER THE FIR-TREES.

The return trip is as enjoyable as the first, and I have to dismount several times to take in more fully the beauties of the landscape. At every point where our wheel-path makes a sudden curve around a bluff or in a gorge there is a warning sign, "*Keep to the right; go slow!*" As I mingled with the devotees of the wheel on the way — all ages, sexes, and conditions of life, I found it quite necessary to heed the warning; and I found in those bold letters a fine subject for moral reflection. I imagined this to be the great highway of life. As we jostle along with the crowd there may be an occasional temptation to give a sharp or even a profane word; but, young man, see yonder sign: "*Keep to the right; go slow.*" There is danger in convivial habits; and in the saloon along our pathway is the first chance and the last chance. Would you escape them all? "*Keep to the right; go slow.*" Does the gambling den have an attraction? Beware, young man; "*Keep to the right; go slow.*" Is there a temptation to be unfair in business? Beware again. It is the upright and honest dealer who runs the longest and most prosperous race. "*Keep to the right; go slow.*" Would you become a good bee-keeper, noted for the neatness of your apiary, and the excellence of your product? "*Keep to the right; go slow.*" I was led to these reflections, perhaps, from what I had learned about a bee-keeper the previous day, and whom I thought lived near Seattle. At any rate my thoughts had a tinge of mourning over the moral condition and conduct of said bee-keeper. Sit down upon this fir stump and I will tell you. I had met this young man several times in Southern California; and though his home was in Seattle I did not expect to find him very prosperous, for I had learned that he had lost about 100 colonies of bees by some one poisoning them. My first inquiry about him and his whereabouts was of a grocer.

RESTING BY THE FOUNTAIN.

"Oh!" said he, with a sneer, "that fellow out at Latona; he was run out of the country, and it is a good riddance."

But for all the grocer said, I went out to Latona, in the suburbs of the city, and made further inquiries of a man who was splitting wood near his door.

He put his ax on a block of wood, and, leaning on the handle, looked at me rather quizically. "You any relation to that fellow?" said he.

"Bless you, no," said I, with alacrity. I had in mind what the grocer said, and had no desire to claim relationship. As your readers are aware, I have met hundreds of bee-keepers, and, almost without exception, they are worthy to hold relationship with the best blood in our land. The exceptions are so few that it really hurts us to find one in a low stratum, in the slime of humanity, as it were.

The wood-splitter corroborated all the grocer had said, and more too. Said he, "Stranger, if that thing had happened in any of the old settled portions of the East, that fellow and that woman would have been tarred and feathered and ridden out of town on a rail, or they might have been treated to a rope and a limb of a tree with equal justice."

A short distance through the brush from this man's house I found the deserted cabin. Bee-hives were piled up, others scattered promiscuously, bees poisoned, the bee-keeper run out of the country, and all because he did not heed the warning that is before us all, and which a man, though a fool, can heed: "*Keep to the right; go slow.*"

There are a few bee-keepers in a small way around Seattle, and a few efforts to find them resulted in finding the very ones I was looking for had moved out of town or else had moved out of the business, just as I had found it in Portland and other places in this northern country.

I found one neat little apiary close to one of those charming wheel-tracks, and within sight of Lake Washington; but an interview was denied me, for the good people who lived in the neat little cottage were not at home. Stumps and bee-hives were mingled in the apiary, for this country has not gotten beyond the stump age. A good growth of ferns also spread their fronds for a shade.

I interviewed quite a number of the grocers, and in every case found them selling California honey, both comb and extracted, the latter in one-pound screw-cap tumblers with a piece of comb honey surrounded with extracted honey. The comb honey had the label of a San Francisco commission house on the shipping-case; but the honey in the tumblers had no such distinguishing mark. The grocer did not have as strong a prejudice against California honey as I had found further south, and this honey in tumblers had a ready sale, therefore it is reasonable to suppose that it was reasonably pure honey.

In writing of the humidity of this northern country I may have fallen into a fault-finding vein; but under the genial skies of Seattle I feel like uttering an apology, and giving this land its just dues. When we compare the rainfall of Oregon and Washington with certain portions of the East I find it about the same. The only difference, if any, is the concentration of the rainfall here into certain months, while in the East it is distributed through the entire year.

Then another remarkable point crops out. Although it is called a web-foot country, there are portions east of the Cascade Range where mountain and air currents are so combined that moisture-laden clouds are deflected, and there are large areas of the country where there is but little rainfall, and the irrigation of farming lands must be resorted to.

The bee-keeping industry is in its pioneer stage, for there is not enough honey produced to supply the home demand. As the country becomes more and more reduced to farm products the better it will be for honey production. Some locations toward the coast are highly spoken of for bee-keeping. Then there are others east of the Cascade Range, notably Walla Walla County, which are quite thickly settled, and devoted to general farm products.

I spent Sunday in Seattle, and found a large church-going community. The Congregational Church where I attended would seat nearly a thousand people, and every seat appeared to be full at the morning and evening services, and from appearances the other churches were as well patronized. The Y. M. C. A. numbers 500 members, and is a growing and thriving institution. Here this Sunday afternoon there is a crowd upon the streets. They march and sing and shout, and are doing a world of good; and whenever I meet these lads and lassies I mentally ejaculate, "God bless the Salvation Army!" They get on a rapid pace when it is toward good; but when the evil appears, their motto is to "*Keep to the right; go slow.*"

HOLDING THE BREATH WHILE HANDLING BEES.

A CORRESPONDENT in the *American Bee Journal*, a Mr. Raymond, says nothing is so offensive to the bees, and nothing so angers them, as a man's breath. I have noticed this myself many and many a time; and when I get a comb close to my face to discover eggs, I invariably hold my breath, or take an inspiration rather than an expiration. For the fun of the thing I have sometimes, when well veiled, breathed on a comb of bees, and instantly the veil-front was fairly covered with an angry mass of sizzing bees with tiny drops of poison protruding just beyond the end of my nose.

CALIFORNIA ECHOES
BY J. H. MARTIN.

One result of the short honey crop is an advance in the price. The price quoted in this city for new extracted honey is 7½ cts.

Mr. Pender, from Australia, made a brief call upon Los Angeles. He found his way to the Rambler's apiary, and partook of those delicious flapjacks. From Mr. Pender's account Australia must be a good honey country. He almost gave me the Australian fever.

Evil reports come from some of the interior locations. Half of the bees have died from last year's famine, and now another famine threatens, and that will use up a large number of the remaining half. Foul brood is also rampant in some quarters. Evils never come singly.

Mr. H. E. Wilder and his wife have gone to Oro Fino to manage Mr. Levering's apiary. The prospects are fair for a good honey yield in that portion of the State, though the season is cool and later than common. Mr. Wilder carried his guns. If the deer and the bear knew as much about him as I do they would all move over into Oregon.

Several tons of honey have been harvested near Riverside where the bees had access to the orange-orchards. The orange-blossoms yielded a good amount of nectar this year. A limited amount of sage honey is coming into the Los Angeles market, showing that there are a few favored locations. There will be hardly enough, I think, for home consumption.

Dr. Miller has a demurrer on page 211. He says that, when he knocks a bee down that is pestering him, another bee does not take its place, and his experience is limited only to the dinner hour. Now, it is clearly the odor of the dinner that keeps the bees away. Say, doctor, are you sure that it was not the odor of the dinner that knocked that single bee down, instead of your hand or your paddle?

I clip the following from the *Criterion*:

THE ARMY IN THE DRUM.

A soldier sought the battlefield
Where first in coat of blue
He passed before the Angel Death
In swift and stern review.
The broken swords were sheathed in mold,
The rusty cannon dumb;
But in the tangled grass he found
An army in a drum.

The sticks were gone that rattled once
Tattoo and reveille,
The shell that took the drummer's life
Had burst the head in three.
But from the shattered sheepskin rose
A low, continuous hum,
The murmur of the rank and file—
The army in the drum.

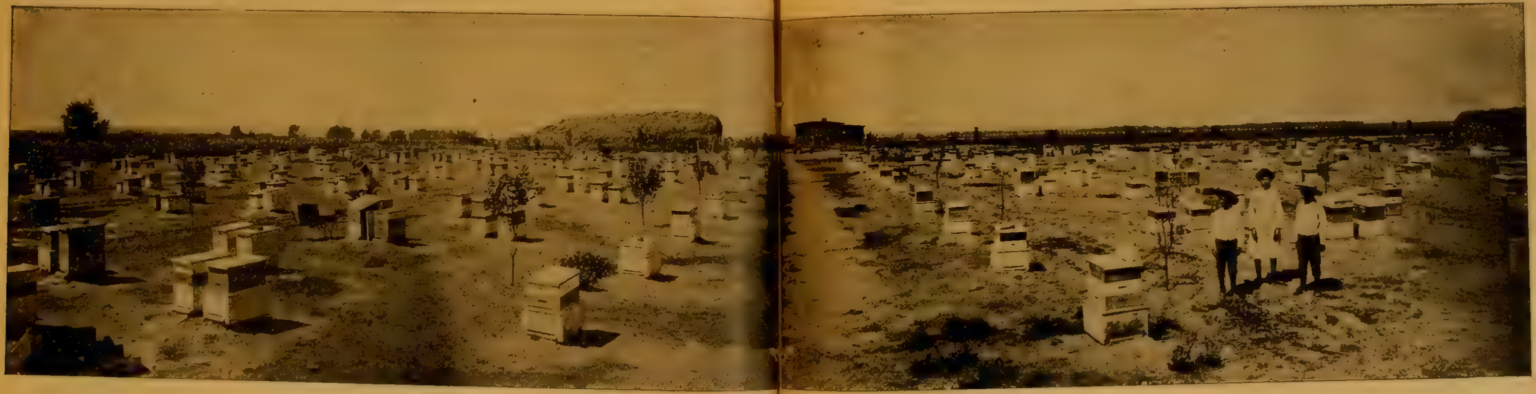
For there the bees had built a home
And stored the sweets away,
From blossoms born of soldier blood,
The mingled blue and gray.
Where once the morning sky beheld
The charging columns come,
They pitched in peace their waxen tents—
The army in the drum!

ALMA APIARY.

Belonging to George Gould, Rocky Ford, Colorado.

BY J. T. CALVERT.

The illustration on this page shows a tasty and well-arranged apiary in the great melon and alfalfa region of Southeastern Colorado. It is located some two miles to the northwest of Rocky Ford; and when I visited it two years ago it was surrounded with very large tracts of alfalfa, with the delicate blue flowers in full bloom. The mowing-machines were hard at work cutting the heavy growth of alfalfa for hay, and cutting off the foraging ground for the bees. Owing to the presence of a troublesome weed they were cutting the hay a little earlier than usual, so as to prevent the weed going to seed or getting too large. They usually cut four crops of hay, and each crop yields honey before it is cut. The large object at the left of the house in the picture is a stack of alfalfa hay. Nearly every farmer has a few bees, so they are more inclined to leave the bloom as long as they can for the bees than if they were not personally interested. The luxuriant crops of fruit, clover, melons, etc., depend almost entirely upon irrigation, hence the conditions are more regular and constant. Beyond the irrigation-ditches the country is almost a barren wilderness, used mainly for grazing when used at all. This region has a reputation all over the country as the place where Rocky Ford cantaloupes come from. Hundreds of carloads of melons and cantaloupes are grown and shipped each year.



APIARY OF GEO. GOULD, ROCKY FORD, COLORADO.

The apiary has very greatly expanded in size since I saw it two years ago. The hives used are the eight-frame Dovetailed and dovetailed chaff. The sections used are 4½×4½×7-to-foot, on T tins, in the regular shallow dovetailed super, which is generally made ⅛ inch deeper to provide for undue shrinkage in this very dry climate. Two tin separators are used in each super, and full starters of extra-thin foundation in the sections.

Most of the honey produced in this section is the finest white alfalfa. Sometimes the bees gather from white sunflower a strong-flavored amber honey, but prefer the alfalfa when that is in bloom. Mr. Gould, the owner of this apiary, formerly kept bees in Kansas; but owing to successive years of drouth, and unfavorable conditions, he was forced to leave. He seems to be prospering well in his new location. He is a careful bee-keeper who appreciates nice implements and good workmanship. His apiary and honey-house are models of neatness, and he certainly does his part well in attaining the success he merits.

Mr. H. F. Hagen started Mr. Gould in this location, and may still have an interest in the apiary. He has also started many another in successful bee-keeping about Rocky Ford. When I was there there were over 2000 colonies of bees within a radius of four or five miles of his home in Rocky Ford.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE

BUILDING UP AFTER-SWARMS.

Question.—Please tell me in GLEANINGS how I shall go to work to build up after-swarms of bees so that they will make strong colonies to go into winter quarters. My after-swarms always come out weak in the spring, as they go into winter weak.

Answer.—Before answering the above I would say that, as a rule, I do not think it pays to try to keep or build up after-swarms, for the reason that, with an after-swarm, goes all prospect for any surplus honey from the parent colony from which it came. To hive each first or prime swarm that comes, generally allows of very nearly doubling the number of colonies in an apiary each year; and unless winter losses are great this would build up an apiary as fast as the experience of a novice would warrant, did he expect to become the most successful apiarist. Then, again, the amount of surplus honey obtained from the parent colony from which no after-swarms are allowed to issue would, as a rule, sell for more than enough to buy good full colonies to take the place of the after-swarm, and thus all fussing with after-swarms be saved. Of all the annoyances and nuisances in the apiary, with me, after-swarms are the worst. Many the bee-keeper in the past, who would give ten times as much to know how to be entirely rid of after-swarms as he would to know how to build them up to good colonies for winter, and Doolittle could have been counted among the many.

But it is well to know both how to prevent after-swarms and how to build them up when allowed. I have written several articles on how to prevent after-swarms, but I do not remember ever writing one on how I would treat such swarms in order that they might become good colonies for winter. I can conceive how one might wish to save after-swarms after such a loss in bees as has been experienced the past winter, so that the combs from which the bees died might be saved and again occupied with bees, and so I am going to tell the questioner and the readers of GLEANINGS how I used to do this when I was more anxious for bees than I was for honey.

The very first requisite toward a successful start for an after-swarm is a *frame of brood* to be placed in the hive at the time of hiving them. As the queen with after-swarms is seldom fertilized till the day after the swarm issues, and often not till several days afterward, it is all the way from two days to a week before she commences to lay, so that it is nearly a month from the time of hiving before any young bees hatch or emerge from the cells, by which time the bees going with the swarm are (the larger part) dead, dying of old age, which makes and keeps the colony weak as to numbers, from the beginning till entering winter quarters. By giving a frame of brood this weakness part is very materially helped; for as fast as the bees die of old age, brood is hatching from this frame to take their places; and thus the queen, when she gets to laying, has suitable bees to mature the eggs which she lays, so that, by the end of six weeks from the time the after-swarm was hived, we have a good populous colony instead of a weakling. Then if, in addition to the frame of brood, we can give the swarm the remainder of the hive filled with empty combs, or, better still, combs having some honey in them, we shall have a colony in the after-swarm at the beginning of winter, more valuable than are those from prime swarms, inasmuch as the queen will surely be at her very best the next year, while the queens in prime swarms often begin to weaken and fail before the honey-harvest of the next year. In absence of combs, more than the one containing brood, I would certainly use foundation, even had I to pay 75 cents a pound for it, did I intend to winter these after-swarms. I am aware that such after swarms will build almost exclusively worker comb, and I have often used them for such comb-building, using them up in that way; but if I wished them to become strong for winter I would give them every advantage possible, and foundation is one of those advantages, where we do not have the empty combs to give them.

We have them now in good condition except stores for winter; and if stores are lacking they must be fed, the same as any other colony which is short of stores when winter approaches. And, if thus short, don't delay the feeding till cold weather, but do it just as soon as you reasonably expect that the honey harvest is over for the year, allowing 25 pounds of good stores for each colony.

HOW TO FIX HIVES FOR CELLAR WINTERING.

Question.—Please explain how you put bees into the cellar, as to roof and bottoms. Do you leave them on or take them off and leave in the bee-yard? Also tell about ventilation at bottom or top of hive. My cellar is damp, and I have many combs mold.

Answer.—Although these questions are a little out of season I will briefly answer them, as they are from the same person as were the questions about after-swarms, and he wishes answers to the whole in one issue. Where hives have a deep cap or hood, this is generally left on the summer stand, and loose bottom-boards are often left there also, in which case the first hives at the bottom are set up on pieces of 4×4 scantling so as to give plenty of bottom ventilation. Then these bottom hives are allowed to stand nearly their width apart, so that, when the next tier is brought in, they can be set so that their lower edges rest on the upper edge of two other hives below, this leaving the bottom all open for ventilation, and so on till the top of the cellar is reached. This, I think, is the Boardman plan, and it is a good one. The only plan I prefer to it is that used by Dr. Miller, which is to so make the bottom-board that it shall have a bee-space on one side and a two-inch space on the other, using cleats of that width when making the side which is to be up for wintering. Having such a bottom-board, on some warm day, when the bees are flying, a week or two before you expect to put them into winter quarters, reverse all the bottom-boards in the apiary, which will give a space of 2⅜ inches under the bottoms of the frames, instead of the usual ⅜. This seems to be ample for ventilation, and with me the combs come out free from mold, where either the Boardman or the Miller plan is used; and my cellar is so damp that it absolutely drips with moisture nearly all winter.

Borodino, N. Y.

E. F., Wis.—We use only about one-fourth of the manuscript that is sent in for publication. Perhaps some that we do use is not as good as some we refuse. If so, we err in judgment in our selection. It is seldom that any publication is interesting to every reader, from cover to cover. What will interest one will not another.

HEADS OF GRAIN FROM DIFFERENT FIELDS

PREVENTION OF SWARMING BY CLIPPING; BY PUTTING ON EXTRA SUPERS.

1. Which is thought to be the better plan to stop swarming—by clipping the queens' wings or by killing the old queen and leaving the colony to depend on a young queen? 2. If by clipping wings, how short should they be cut? 3. Is it advisable to put on crates to give them more room to stop their hanging out when there is not any honey coming in, or ought I to keep crates off till honey commences to come in? A. I. BROWN.

Palo, Mich., May 31.

[1. Clipping queens' wings will not stop swarming. It will only prevent the swarm from absconding in the absence of any one at home to take care of the bees. A swarm with a clipped queen will fly out; and when it discovers the queen is not with it it will return to the old hive, or, better still, if the apiarist is on hand, to a hive with empty combs or foundation, which the apiarist will have placed there.

2. Wings should be clipped on one side only. Cutting the large wing up close may be sufficient; but I would advise cutting both wings on one side, cutting back far enough so there is little more than stubs left.

3. Giving an extra crate of sections may discourage swarming, but it will not necessarily prevent it.—ED.]

THE BARBER PLAN OF STARTING BEES INTO SUPERS.

I see by GLEANINGS we are advised to put on shallow extracting-supers to start bees sooner in storing surplus honey, after which they will work more readily in sections. Are we to take off the extracting-supers as soon as the bees get well started, or let them complete them? Which would you advise?

Corinth, Me., May 29. S. W. CRESSY.

[The half-depth extracting-super may be taken off at the time of putting on the comb-honey super, or it may be placed on top of the latter, and left there until it is sealed. But I would advise, generally, putting this partly filled extracting-super on top of another colony that needs a little coaxing above; then, as soon as they get to storing well, take it away and put in its place a comb-honey super. In this way one extracting-super might act as a coaxer for five or six colonies; but if a bee-keeper has a market for extracted honey, I would leave the extracting supers on each hive, and run for both comb and extracted at the same time. This is contrary to the accepted orthodoxy of bee-keeping; namely, that one should run for either comb or extracted honey and not for both; but I am satisfied that this orthodoxy, if such it be, should be revised.—ED.]

EDITORIAL BY E. R. ROOT

I FOUND the first basswood blossom open June 14; and to-day, the 15th, the bees are at work on it.—A. I. R.

REPORTS from various portions of the country are very flattering. White clover seems to be out in abundance; and by the way orders are pouring in for sections, foundation, etc., it would seem as if honey were coming from somewhere. The Leahy Mfg. Co., further south, where the season is earlier, write that they are swamped with orders. This would seem to indicate that the flow of honey where the season is further advanced than here, is copious. If it should prove to be the same further north, with us, we'll not complain. It's too early to count our chickens. We may yet have a failure here in the North.

S. A. NIVER AT MEDINA.

WE have just been having a two-days' visit with S. A. Niver, the honey-salesman, formerly of Groton, N. Y., a man who needs no introduction to the readers of GLEANINGS. Just before leaving Medina he wrote a note to W. L. Coggshall, one of his old neighbors, a bee-keeper who owns and operates from 1000 to 1200 colonies. This he showed me, saying, "You can see what I have written to Lamar." On reading the same I begged the use of it in this number of GLEANINGS, as it would be a nice introduction to some dialog matter that will appear in these columns soon. Well, here is a copy of the letter:

> *Friend Lamar:*—You see I am holding forth at Rootville; and during a conversation with Ernest I discovered a stenographer was taking it all down for publication. I may have made a bad break in quoting you, but I guess you can stand it.
>
> Ernest and I wheeled out to Vernon Burt's last evening, and found some of his colonies with two supers on, and booming on white clover, and basswood right on hand, although there is but little of it here. A. I. is so busy with strawberries by the bushel that he fairly stutters. I am having a boss good time, any way. "How are they coming?" S. A. NIVER.
>
> Medina, June 14.

Our stenographer, by pre-arrangement, has the whole thing down in shorthand, verbatim; and you know Niver is one of those chaps who, when he gets his tongue balanced, as Harry Howe says, knows how to talk. As he has had a very extensive experience in producing and selling honey, he has indeed given some very interesting and valuable matter. As to the "bad break," we will leave him to fight it out with Coggshall later.

"PERSISTING IN ERROR."

FROM the Department of Criticism, by R. L. Taylor, in the *Bee-keepers' Review* for June, I take the following extract: "The editor of GLEANINGS, p. 348, joins Dr. Miller in thinking that I am too much inclined to hold on to error against light. What errors, my brethren?" Then Mr. Taylor enumerates several opinions that he has held, but which Dr. Miller and I may possibly regard as "errors against light." Among them he says he prefers a hand-hole to a hive rather than a cleat clear across it. I could hardly class this as an error in any event, for it would be simply a difference of opinion. In this particular case I incline to the preference of Mr. Taylor rather than to that of Dr. Miller; but I prefer to either a combination of short cleat and hand-hole. Mr. Taylor further says he believes a queenless colony having larvæ and eggs of all ages, left to itself, will raise inferior queens. So far as I can see, there is no error in this, from my point of view, because I partly agree with him. And, again, he believes "that the spores of foul brood boiled fifteen minutes in honey will lose their vitality." Right here I believe our friend is stubbornly holding on to an opinion which, if believed in by his readers, would do harm rather than good. Further down the page Mr. Taylor says he does not take issue with Mr. Cowan on the question of boiling when it refers to 212° only, but that he, Cowan, does not "touch the essential matter at a single point;" that the question is one of boiling in *honey*. Referring back again to page 348, GLEANINGS, Mr. Cowan, in his note to myself, says: "I got GLEANINGS for March 15th last evening, and have gone through the correspondence about foul brood, and I think you are perfectly justified in recommending a long boiling of *honey* so as to render it safe to give back to bees." The italics above are mine; and Mr. Taylor will see that Mr. Cowan not only indorses what I have said on this question, but specifically talks about "boiling honey."

Another probable error of Mr. Taylor's, but a harmless one, is that in relation to color and the attitude of bees toward it. If our critic will read over the evidence as Mr. Hutchinson has done, he ought to be convinced, for Mr. Hutchinson says: "It does seem as if the testimony given in proof of this aversion (to black) is incontrovertible."

The points on which Mr. Taylor and myself disagree are very few indeed; and some of these may be ascribed to locality; for instance, the one regarding large or small brood-nests for honey.

LARGE HIVES AND THE DISCUSSION OF THEM.

THE editor of the *Review* thinks that the subject of large and small hives has been discussed about long enough. To my notion we are just now getting hold of facts. W. H. Eagerty, of Kansas, in the *American Bee Journal*, after having used both large and small hives, says, "I will take the large one every time. . . . And while it takes some time for the bees to build combs in the brood-chamber, they get there every time," and then he winds up as follows:

> But take a hive holding 10 frames 10 inches or more deep, and 18 inches long each, and with a good queen—if there is any honey to be had, you will be very apt to get your share of it, and you will not have to lie awake nights figuring how to have your colony strong enough just at the right time. Your only wonder will be at the stream of bees as they come and go at the entrance of the hive, how the box can contain them.
>
> I have kept bees for several years, and never ex-

tracted any honey, and I hear very much said about small hives being the best for comb honey, but I knew the value of large hives and very strong colonies of the very best strain of Italian bees.

NAPHTHOL BETA AS A GERMICIDE FOR BACILLUS ALVEI.

SCIENTIST H. W. BRICE, the skilled microscopist who has been carrying on a long series of experiments in examining *Bacillus alvei*, and testing the value of various germicides, has been giving the results of these experiments in a series of articles in the *British Bee Journal*. I have already referred to him as having stated that it is very difficult to destroy foul brood in the spore form by boiling. In an article in said journal of May 4, he tells how he tested the value of the various germicides; and among them naphthol beta seemed to be one of the most effective and at the same time harmless, so far as human beings are concerned. Other drugs are perhaps as effective, but they are dangerous for bee-keepers to handle. Carbolic acid, in crystals, did not seem to be as active an agent as naphthol beta. These results were arrived at in testing the strength of the several agents on *Bacillus alvei*, but not on *spores*. Speaking of the power of *spores* to resist high temperature he says:

> Boiling is almost useless as at present carried out. In fact, I found it necessary to permit some time to elapse between successive boilings, to allow the spores to germinate between each operation. For this purpose a medium must be present of some kind, as without this even successive boiling of hives is mainly unsatisfactory.

SEPARATOR AND NON-SEPARATOR HONEY.

ON page 461 of this issue we show eight sections of honey produced in the apiary of Geo. Gould, Rocky Ford, Col., an illustration of which appears on pages 470 and 471. These eight sections were taken from a 24-lb. shipping-case of honey that was produced at the Rocky Ford apiary and sent here. Mr. Gould uses a separator in every other row of sections in his super. As a result of this, some of the sections are evenly and nicely filled, and others are too fat or too lean. I would call attention to the illustration showing the four sections produced with separators and four without, the bottom row belonging to the latter, as will be plainly seen. These, while being well filled, are *too* full, and no doubt were completed without separators. They overrun in weight, and do not present the even appearance of those in the top row. All the honey in the case was snow-white, and of very fine flavor, and were it not for the defect named in some of the sections this case of honey would be almost perfection itself.

It would seem to me that Mr. Gould could get more money for his honey if he would put a separator between *each row* of sections while on the hive; for in some markets, at least, those bulged combs would go at a discount; and occasional handling to determine its quality, selling price, etc., would result in abrasing some of the surfaces of the comb. When this were done, the whole case of honey would be knocked down a cent or two in price because it would be classed as broken or leaking honey.

SHADE FOR BEE-HIVES; APPLE-TREES VS. SHADE-BOARDS.

IN the *Bee-keepers' Review* for June, the editor shows in the frontispiece what he considers to be a well-shaded hive. It is an ordinary Heddon with three comb-honey supers on top, and a shade-board, or covering, projects over the front of the hive (a foot or more, perhaps) about like the vizor of a cap over one's face. The illustration showing this arrangement represents a hive, I should judge from the shadow, facing the east; or at least the shadow itself comes down two-thirds of the way over the front of the hive. The shade-board does not project over the back, perhaps, over four or five inches; and when the position of the sun is reversed, or at the opposite point in the heavens, the back end of the hive would, I should think, receive the full rays of the sun, except the very small portion protected by the rear four-inch projection of the shade-board. On the shade-board is a stone and a Bingham smoker—the latter not being required, of course, to hold the board on the hive.

The ideal shade for hives, to *my notion*, is a good old-fashioned apple-tree, or a fruit-tree of any sort with low spreading branches about six or eight feet from the ground. The trees do not leave out, usually, until after the time when the direct rays of the sun would do more harm than good; and during the time when the trees are fully leaved is the *very time* when the bees need shade. In the rear of almost every country home there is an orchard of some sort; and this is my ideal place to put the apiary, because it affords comfort both to the bees and to the apiarist. There are no shade-boards and heavy stones to manipulate every time the hive is opened, and no time to waste; and, what is more, the hives are completely shaded, except, perhaps, early in the morning and late in the afternoon, when the rays of the sun are very mild. We have used shade-boards here; but when we can get trees we prefer them. A. I. R. formerly preferred grapevines nicely trellised up; but as these involve so much labor in taking care of them, and as the shoots grow so rapidly, and throw out sprawling obstructions over the front of the hive, I have personally formed a decided dislike for them.

Now, a hive can be located in an apple-orchard by its relative proximity to the trees so that the sun can strike the hive up to nine or half past, and again at half-past three. If the locality is in a warm climate, the hive can be set back a little more under the shade so the direct rays of the sun will not strike the hive after eight o'clock in the morning and before five o'clock at night.

Our plan at our basswood-orchards, where we have low spreading basswoods, is to group the hives in fours and fives. This arrangement gives all four plenty of shade, and saves a lot of running to and from one hive to another. Why, it is just comfort to sit down on one hive and work at the other, with tools—screwdriver, smoker, super, etc.—all lying before the hive. Of course, if any of the group are tiered up pretty high, then the sit-down act can not very well be performed.

OUR HOMES,

BY A. I. ROOT.

Blessed are the meek, for they shall inherit the earth.—MATT. 5:5.

Mrs. Root and I had been talking, just before retiring, about the difficulties of enforcing laws against intemperance, Sabbath-breaking, and all the evils that follow along with these things. I had been speaking of the fact that there was to be a Sunday excursion, every Sunday all summer, from Medina, including a boat-ride on Lake Erie, at a very low price. I said I feared that not only outsiders, but even the members of our churches, would be drawn into the fashion of making Sunday a *holiday* instead of a *holy* day. As we knelt down before retiring, and prayed over the matter, I ended my prayer by thanking God for the promise that the meek shall finally inherit the earth. As I arose from my knees I realized with unusual vividness what a tremendous change would have to be made before the *meek* instead of the *millionaires* and great railroad men shall have charge of affairs, and own and *manage* the earth. But while I was thinking, Mrs. Root voiced my thoughts by saying, "Why, it does not seem possible, the way things are going, and the way every thing is tending, that the meek can *ever* inherit the earth;" and I confess that I have several times of late been wondering whether we could not have a community of people gather themselves in some spot on earth where everybody loves righteousness and hates iniquity. I confess I have at times of late felt really tired of working so hard to get laws passed in one little particular, and then see them trampled under foot right away by somebody else who seemed ready to crowd in and sacrifice every thing for greed and gain. Well, I do not suppose the great Father ever intended or really wants us to go off by ourselves and let the rest of the world go to ruin, if they are so determined on it. I think he means us to stay right where we are, and do our best in holding the fort. I feel this, because right in that same chapter from which my text has been chosen, he tells us, "Ye are the salt of the earth."

Perhaps one reason why things look so discouraging at times is because we have been looking only on the discouraging side. There is another and a brighter side. Every little while, if we take notice, we may witness cases where the meek are quietly winning great battles. Let me tell you a little story to illustrate the matter:

Some years ago a German whom we will call Jacob came over from the fatherland, bringing his wife and a lot of healthy children. He did not have very much means, but he had health and strength, and a love for honest toil; and this, his wife and children all possessed like himself. Jacob got a little piece of land where he could engage in truck gardening. He did not have a team to plow his ground, because, first, he could not afford one; and, secondly, most of the plowing was done with one horse, any way in that beautiful soft loamy soil on the banks of a great river or bay that came in from the sea. To tell the truth, Jacob did not have even a horse. At that time, in that locality, many poor people used an ox or cow when they could not afford a horse or a mule; and Jacob commenced making a home in the new land, with only one beast of burden; and by some queer combination that I do not exactly know about, this beast was a good stout *bull*. With this animal he plowed his ground, and moved his produce in a good heavy cart, and no doubt he felt happy; but one day when he was taking something to market his first trouble came. In the neighborhood they had one *rich* man. I do not suppose he was a millionaire, by considerable; but he owned the only span of ponies and the only carriage there was in the whole region, and he was very fond of driving about with his fine equipage, and giving people to understand that *he* was somebody of importance, and I believe he sometimes had a fashion of ordering people out of the way.

One day, in driving out with his ponies and carriage, he met Jacob coming up the road with his bull and cart. The horses were frightened at the odd equipage, and began to show their fear. At this point the rich man (we will call him Mr. Y.) peremptorily ordered Jacob to drive off into the woods with his ungainly rig, so that he could pass with his ponies and carriage. No doubt Jacob felt hurt, but he meekly submitted. Now, like most of the German people, Jacob believed in Sunday and in going to church; and as there was no other way to get there with the whole family he loaded the wife and children into the cart one bright Sunday morning and brought them all to church, leaving his bull and cart hitched to a tree near by. Soon after, Y. came to church also with his fine equipage. The horses were, of course, frightened again at the strange animal. It seems to me that I have heard that the bull bellowed a little in his low grumbling way, like distant thunder, but that may not be true. Y. was exasperated to think that Jacob should have the cheek to go *to church* and bring the obnoxious animal. I presume Y. gave more than anybody else toward the support of the minister. Perhaps he gave more than anybody else toward building the church, and naturally supposed he was boss of matters on Sunday in that whole community as well as on week days; besides, he was angry, even if he *was* a member of the little church. He walked right in among the congregation, and called Jacob out. Then he gave orders for him to take that bull home, and never bring it around there again to scare horses and disturb honest Christian peeple. Jacob meekly submitted, but said he would first have to go in and get his wife and children. The poor little flock on this, the first morning they had ever undertaken to go to church in the new land, were put back into the cart, and the sad and sorrowful band went back to their home in the woods. Jacob told Y. that he would not come any more, but Y. did not relent. I do not know all the circumstances; but it is a wonder to me that the good pastor did not interfere in behalf of the family; and where were the good women of the church? the Sunday-school superintendent and the teachers? Something may have been done, but Jacob did not go back. He and his wife and children stayed at home—perhaps had Sunday, and worshiped God by themselves. But they soon became very successful gardeners, as such a German family would, of course. Oh how I do love the sturdy, hard-working, quick-witted and quick-moving German people! Sometimes they are a little slow in getting the hang of things; but when they find out just what is wanted, I do not believe there is any people on earth that can do more work in a day. And then they are, as a rule, such clever, neighborly, kindly, and generous people. When it comes to endurance there seems to be no limit to the number of hours they can work, and work faithfully, and this is true of the men and women, and boys and girls. I know, for it has been my good fortune to work with them more or less a great part of my life.

Jacob prospered—*of course* he did. He learned how to grow better stuff than anybody else, and his wife and children got it into shape for market in better season and in better style than anybody else. Y. kept on in his domineering way, and pretty soon people got a dislike for him, notwithstanding his riches. He finally got into financial troubles; and the church building, that had never been paid for, became involved in some way. The owner of the property threatened to shut it up unless a certain sum of money was forthcoming at once. They had been having bad seasons, and the people were poor. Nobody around there had the money to spare, unless it was Jacob; and Y. was appointed to go and see if Jacob would not lend them money to keep up services. I do not think Jacob had been working for revenge; but he did remind Y. of the time when he drove him and his poor wife and family out of God's house. But he handed over three thousand dollars, told the church people they could take their own time for payment, and I rather think he let them have it at a low rate of interest; and Jacob came back and brought his family, and helped the rest to worship God and to remember the Sabbath day to keep it holy. Yes, and Jacob came to church too with a span of horses, and carriage big enough to bring the whole family. The skill he had acquired in gardening in that particular locality enabled him to make sure ventures year after year when almost everybody else failed. He added farm after farm to his possessions; and as soon as he got a new farm he let one of his boys or girls take charge of it. Come to think of it, I am not *sure* of this, for you see I am filling out the story a little, when I didn't get full details. God prospered him, for he was a *good, honest, square man*. While he learned to make every thing succeed that his fingers touched, Y. seemed to be going in the opposite direction. His property had to go until only one farm was left, and that was to be sold at a great sacrifice unless somebody interposed. The only one in the neighborhood who could help him was Jacob. Would he do it? Y. went to see Jacob; and with bowed head, and probably tears in his eyes, he told the stories of his misfortunes.

This time Jacob did not say any thing about the unneighborly treatment of years before, but he *forgot* and *forgave* all that unkindness when he was a stranger in a strange land, and handed over the money once more—stood between Y. and his merciless creditors, and made things easy for him. Oh is it not a beautiful sight, to find one who can really love his enemy, and *do good* to those who hate him? After a while Jacob bought property in the adjoining town; and not long ago he put up a beautiful block of brick buildings; and in great big letters that can be seen far up and down the street you may read, "Jacob's Block." And even though Jacob has wealth, and power if he chooses to use it, his wealth has not made him proud and arrogant. He is still ready to extend a helping hand to—I came pretty near saying, to *friend* or *foe* who might be unfortunate. Oh that we had more Jacobs in our land! Oh that we had more *rich* men who believe in following Christ's words when he said, "Love ye your enemies; do good to them that hate you"! I do not know that Jacob ever noticed the promise, "Blessed are the meek, for they shall inherit the earth;" but I *do* know that such a record as his is a *better* sermon, many times, than some of the sermons we hear from the pulpit.

NOTES OF TRAVEL

BY A. I. ROOT.

For many years I have been thinking of a trip to Norfolk, Va., during strawberry time, not only to witness the strawberry harvest, but to take in the truck gardening generally. Well, along toward the last of May, when our potatoes were mostly sold or planted, and the seed business was pretty well over, I began to feel a longing to get out in the world once more; and when I noticed in one of the dailies that I could get a round-trip ticket from Cleveland to Washington for only $11 00, it made me get the traveling-fever still more. Before telling you more about my trip, may I say just a word in regard to traveling generally?

To travel easily, expeditiously, and at small expense, is a trade, or, I might say, one of the fine arts. Of course, we want to go comfortably, and we want to have due regard for health; for it is not only expensive business, but it is rather unpleasant to be sick while away from home. Although I have had quite a little experience, I seldom make a trip but that, after I look back, I see where I might have lessened expenses and saved time; therefore one had better study the matter well before he starts out on a trip of any extent. One does not want to lumber himself with needless baggage, and yet he wants every thing along that is really needed.

I usually take about a week to collect things that are wanted, and put them in my valise. Be especially particular about having accurate addresses for every person you wish to find, and give them notice beforehand, as nearly as you can, when you expect to call on them.

I find it very convenient to locate many of the little things in different pockets in my suit of clothing. For instance, I always have one special pocket for my railroad ticket; another one for dimes and nickels; still another for quarters and halves, and an inside vest pocket for paper money and checks that are to be used as I happen to need them. My vest is also placed under my pillow, and in this way I never go off and forget my pocketbook or watch. One of my inside coat pockets contains postal cards addressed to The A. I. Root Co. In this way I can easily drop Mrs. Root a card, giving her notice every day or two "where I am at." Another inside coat pocket contains addresses or letters of introduction. In my outside coat pocket I have an extra clean handkerchief; then in the hip pocket to my pants is a soiled handkerchief. I use the latter, so as to keep the former clean when in the presence of company. In riding my wheel I have a still older silk handerchief, to dust off my shoes before I enter a dwelling. In another pocket I have a toothpick; in still another, my eye-glasses; and I carry also an extra pair of eye-glasses lest I should mislay or lose the other pair. Then I have sundry other articles that are sometimes in my pockets and sometimes in my valise — a bicycle-pump and wrench, for instance. When I travel by wheel my valise is sent ahead by express, or left until my return. By having every thing thus conveniently arranged one may catch a train or make connections that, to miss, might cost hours of waiting, or sometimes a whole day.

Whatever you do, never keep the conductor waiting while you are hunting for your ticket first in one pocket, then in another, and the same way with your money. Never keep anybody waiting while you hunt for it. Have every thing you need so that you may quickly and easily put your finger right on it.

I reached the city of Washington early Tuesday morning. This was to be a sort of strawberry trip, therefore I proposed hunting up strawberry-growers. I had written to A. T. Goldsborough to meet me at the train, if he could conveniently. Well, I made mistake No. 1 by not remaining on the platform a few minutes longer. He was a little late in getting around, and I suppose I stood there about three minutes, and then started on an exploring expedition. Starting off too soon was mistake No. 1.

Mistake No. 2 was in depositing my valise in the check-room before I had taken out the paper containing the addresses of bee-keepers in Washington. I paid ten cents to leave it till called for; so when I asked the agent if he could let me have it back long enough to get a letter, he said their rules were, no handling of baggage until you want to take it away; so *that* one piece of omission cost me ten cents.

Now, do not go on about people being unaccommodating at a great railway station. When a train comes in there is a lot of people wanting to deposit their baggage or take it away; and this rule is plainly printed and posted up so that careless people won't be all the while bothering them. When you are traveling, submit to the ordinary rules of travel. Do as other people do—look pleasant, and you will have a good time which you will not have if you stop to grumble and complain of the great busy business world.

Mistake No. 3 was in discovering that I had neglected to bring friend Goldsborough's address; but I felt so sure it was Washington Heights I *thought* I did not need any address; but when I asked the car conductor about Washington Heights he said he did not know any thing about such a place. He called to another man on another car, and he said he knew ever so many "Heights" but no *Washington* Heights. Some of the passengers thought they knew where it was, and I spent all the forenoon (and a lot of nickels) riding all over the city here and there. Toward noon the conductors got so they knew me, and asked me to report progress; and it seemed to me that most of the motormen in *Washington* were helping me to find "Washington Heights" before I got through.

About dinner time I decided to hunt up a bee-keeper; but when I got as far as I could go I found the cars were more than a mile from his home. Then I had to go a mile straight back again to a bicycle store to rent a wheel. I found the place by seeing a hive of nice Italians right beside the front door; but Mr. Johnson was away from home. His wife brought me the bee-journals, and pretty soon I found that A. T. Goldsborough was at *Wesley* Heights, about four miles out of the city. I found his pretty home away off among the hills, and I was lucky for once in finding him right out at work among his strawberries, egg-plants, chickens, etc. He does not allow the *grown-up* chickens in his garden, by any means; but he is the man who has on his grounds a brood of little chickens all the while to take care of all kinds of insects that bother his egg-plants or any other garden stuff.

I was just in time to test some samples of the delicious pink and white Louis Gautier strawberry. He had many other seedlings to show me that were of much interest; and he has several *special* seedlings of the Louis Gautier that promise to correct any faults this delicious berry may have.*

**Since the above was in type we have the following from friend Goldsborough:*

Mr. Root:—I am sorry you made such a flying visit, as I had time to show you only a few strawberry-plants in the kitchen garden. I have fruiting-beds in four other parts of the 50 acres, and four or five different soils can be found. I took in a basket of English seedlings to the Department of Agriculture yesterday, as a gift to the Secretary, Mr. Wilson. The berries made quite an excitement there, as I do not believe a two-ounce berry had ever been seen before by any of them. As my berries averaged $3\frac{8}{100}$ ounces, you can imagine their surprise.

Mr. Saunders, the veteran horticulturist, said he had never seen such fruit. Acting Pomologist Wm. A. Taylor picked out six which filled a quart box, and weighed nearly 18½ ounces—an average of $3\frac{8}{100}$ ounces

I was obliged to make my stay short, however, for I had lost the greater part of the day by that little bit of carelessness about the address. Another thing, a thunder-cloud was looming up and muttering. Yes, I got caught in the rain, and took refuge in a dainty little station built for the trolly-car passengers. But they have good roads in Washington, and so I was off again on my wheel almost before the drops of rain had stopped falling. I thought when I came to the asphalt pavement I should be lucky; but the rain water that had been soaking into the graveled roads just stood on top of the asphalt; and before I knew it I had sprinkled my back, and my Sunday pants pretty well in front, with muddy water. By the time I reached the city, however, it was dry enough so that a colored boy brushed me up and polished my shoes so I looked pretty well by the time I was ready to take the Norfolk boat.

Where was our good friend Danzenbaker? Why, I omitted to take his address also, and by the time I reached his dwelling he too had gone out of the city. I had a delightful ride over the Potomac during the night; and early the next morning, while I was taking in the wonderful sights of sailing vessels and every other kind, going in every direction, I espied a great big steamer that looked as if it had just risen out of the depths of the ocean. In fact, I said to somebody that I wondered what they were going to do with that old "rusty-looking tea-kettle" of a steamer. What do you suppose it was? Why, it was nothing but the Reina Mercedes that was standing off the coast of Newport News. People were very curious about it, and wanted to explore it; but the sentinel stationed on the boat gave orders that nobody be allowed to set foot on it, no matter how curious he might be.

At the boat-landing my good friend J. W. Stebbins, who had given me a kind invitation to make them a visit, was there ready to receive me; but there were so many hackmen, and they were so determined to get hold of my valise, or catch me by main strength, that I pushed along, trying to make them believe I *knew* where I wanted to go. But I didn't, after all. I should have waited at the landing until my friend had decided who A. I. Root was, and made those fellows let me alone. That was mistake No. 4. This was not a bad one, however, for by the time I reached my friend's office he was right behind me. When I told him I had only 24 hours to spare to see the truck-gardening of Norfolk, he seemed a little dissatisfied; but as his horse was already hitched up he said we would get off and make the best of the day before us.

Very soon I began to discover one of the reasons that induced market-gardeners to gather at that point. There are salt-water bays and inlets running away up into the land in every direction, so that the produce from gardens can be easily loaded on boats so as to be shipped by water anywhere it is wanted. I was pleased to see a mule, hitched to a large-wheeled cart, walk right down into the water with a load of truck, and back it up so the contents could be easily lifted into a boat. You see the large wheels of the cart raise the body up considerably out of the water. This little boat then runs up alongside of the steamer. The large truckmen have also a platform or landing beside the track, so as to load the stuff on the cars. A side track runs out through the gardens, and little spurs go out still further right beside almost every large farm.

Almost the first thing that greeted my eyes were great fields of early potatoes. These are planted in rows as straight as one can draw a line. The stand of vines is all even and regular. There are no very poor spots nor extra good ones. This is in marked contrast with out potato fields and grain-fields here in Ohio; and, most surprising of all, there are absolutely *no weeds.* There are hundreds of acres where I did not succeed in finding a weed of any sort, big or little. These potatoes are grown for the early market in the north, and the men who own them are experts. They have decided by long experience that they can not afford to buy expensive fertilizers (nor even stable manure) to furnish weeds fertility to grow on. This even stand of crops is secured by careful attention to several important details. In the first place, the ground is thoroughly underdrained. Most farmers would think such a porous soil would not need any tiling. Not so with the Norfolk truckers.

One of the most successful and largest gardeners is Mr. E. E. Trotman, of Churchland, Va. Just to give you an idea, I will mention that he buys 500 tons or more of chemical fertilizers in a year. The farms are divided up into lots of several acres each, with roadways running at right angles. Where the roads cross each other I noticed what I took to be small-sized wells walled up with brick. They are, perhaps, a yard across. On looking down into one of these wells I found they were silt-basins with tiles opening into them from different directions. In order that the tiles may not be so very close together, there are many of them down to a depth of 3½ or 4 feet, and sometimes more than this. To show you what an amount of water some of these tiles are expected to deliver, I will mention that one of the outlet tiles was 14 inches across. Mr. Trotman says he wants these wells so he can look in when it rains, and see if every line of tiles is doing its duty. If it is not delivering the quantity of water it ought to carry, then the matter is looked into. Now, there is a good point, friends. Have your tiles so you can tell from the outlet whether they are doing their duty.

I learned during the conversation that Mr.

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each. The largest berry had been picked nearly 18 hours; had been handled by many, and had bled some, or it would have smashed the English record of four ounces, which it tied. This berry could have hung on at least a day longer, as it had a green spot on its side as large as a copper penny, and would have gained some. I had to pick it because some of the rest were overripe and losing weight. This 4-ounce berry measured 10½ inches in circumference. It was photographed for the department. Weighing and measuring were witnessed by four gentlemen connected with the Division of Pomology, all of whom signed a paper to the statement I have made.

Washington, D. C. A. T. Goldsborough.

Trotman sows as much as a ton of spinach seed every year. Spinach is a big crop for the city markets.

Where we took dinner our host told us he was offered $1.00 per cartload for all the stable manure he had to spare. He said the man who bought it carted it six miles at that.

While some men amass great fortunes in this sort of truck-gardening, there are others who complain that "farming does not pay," just as they do here at the North. It is the man who uses his brains, and profits each day and each hour by past experience, who succeeds; and after one has got the business so under his thumb that he can manage to grow the crops and sell them at a profit (that is, as a rule), there seems to be no limit to what he may accomplish. He can keep adding farm after farm — that is, so long as he can advise and direct the management. The secret of having clean crops is by putting in practice the very latest methods we have here at the North. Their light and porous soil is, of course, very much of an advantage to work. The potatoes are planted and covered very much as we do it—that is, the pieces are dropped at the proper distances apart in a furrow, and then the ground is thrown over them so as to leave somewhat of a ridge. Just before the weeds get to be visible this ridge is worked down a little with horses and proper tools. After a few days, or when the rain has made a good crust on the soil, this crust is broken, and the ground worked down a little more. This is continued till after the potatoes are up, breaking the crust and stirring the soil right in under the plants; and no field is ever neglected so as to let the weeds get the start. It does not pay; neither are bugs allowed to get in their depredations. Some of the truckers sprinkle on Paris green and plaster. Some use a barrel on wheels (with Paris green and water) that sprays four rows at a time.

Now, these truckers have a sort of rotation in garden stuff. For instance, potatoes are grown mostly between strawberries, or, rather, strawberries are grown mostly between potatoes. The rows of potatoes are five feet apart in this case, and a row of strawberries is put between every two rows of potatoes; and, judging from appearance, they are set in about as soon as the potatoes come up. The small-footed mules pull their light cultivators between the rows, only 30 inches apart, without any trouble. I believe they are rather better than horses, because they rarely or never step on the plants. After the potatoes are marketed, then the strawberries have the whole of the ground. To give you some idea of the strawberry business at Norfolk, I make the following extract from a letter from friend Stebbins:

> Saturday afternoon, at the back of one of our steamboat wharves I counted 17 sail-boats unloading strawberries at once, while others were in sight coming in to unload, and still others going out unloaded. At the front was a string of teams a quarter of a mile long, waiting their turn to unload. Three teams could unload at once, and I don't think it took more than five or six minutes to the three teams. In going a mile I counted 15 more teams coming in, all loaded with berries; that was at half past three, and that sort of thing would keep up until six or half past. Now, that is only one of half a dozen lines in town at the same business. You could smell strawberries for half a mile. JOHN W. STEBBINS.
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> Broad Creek, Va., May 15.

At the time I arrived, the strawberry-gathering had come to a sudden stop, not because the berries were *gone*, mind you, but because the price had dropped to a point where it did not pay to pick them. In Norfolk they pay two cents a quart to the pickers. Then they have to furnish crates and boxes; and at the price offered, only three cents, it did not pay for harvesting. So the owners of the fields, even while the rows were red with berries, gave out to the country all around that whoever chose, colored or white, could come and pick, without money and without price, all they wished. We found colored people scattered all over the fields, picking; others walking into town with crates of berries on their heads. They went through the town offering them at the houses for only three cents a quart. As the berries cost them nothing, they did perhaps very well at the work; but it seemed to me to be rather discouraging business for the grower.

In some places we found the pickers scrambling out of the way of the horses and plows. They were turning the berries under in order to get in another crop without letting the expensive land lie idle. Friend Stebbins says he has seen berries turned under when there were enough to make the red juice follow the plow as it crushed them in the furrow. Three of his family went out the evening before, and in three hours they gathered 70 quarts in one of these deserted fields.

One gardener whom we called on (Mr. Henry Norfleet) had about half an acre of Lady Thompsons. There had been scarcely any berries picked from the field when the price went down. I do not know that I ever saw more ripe berries on a given area at one time. Some of them were really overripe — large and luscious. Nobody wanted them as a *free gift*. We had been eating berries all day — at least I had — but we felt so sorry to see these wasting that we ate a good many more. The Lady Thompson is certainly a very fine berry in the South. It is hard for the growers, it is true; but yet it certainly is a great blessing to a community to have berries so cheap that all can have all they want, morning, noon, and night. I asked some of the growers if they proposed to keep right on raising strawberries. They said there was no other way to do, and that they frequently had to make the best of a glut in the market in almost all kinds of produce; but the man who keeps right on growing good crops is pretty sure, sooner or later, to have something to sell when the price is good and everybody wants it. Just one illustration:

We saw one large field of peas that were entirely ruined by a little aphis that covered the vines. This had appeared this year for the first time in a good many places, and had entirely ruined the crop. Now, the one who is lucky enough to have plenty of peas to sell will get a high price for them.

My attention was called to the fact (and I was very soon satisfied of the truth of it) that by far the best place for market-gardening is within, say, a mile of the salt water. The sea-breezes, and the salt sprays that are frequently blown over the ground by the wind, exercise a very beneficial effect. So you see there are two reasons for being near the water—the crops grow better, and transportation is easier. Windbreaks are also found to be beneficial, and in some places we saw where a dense growth of underbrush was permitted to grow up along the roadways to keep off the cold winds.

The potato mostly grown here for the Northern markets is the Early Rose, although further south I am told they grow the Triumph more largely.

Nothing has ever been done in the way of irrigation, even though they have many quite disastrous drouths. As our Ohio Experiment Station has recently stated, they find stirring the ground with cultivators much cheaper than applying water, and it seems to answer very well.

As an illustration of how a mere trifle will make all the difference between profit and loss, friend Stebbins gave me an item from his own experience. At one time he was considerably interested in growing turkeys — so much so that he had quite a quantity of turkey manure. He and his neighbor were both growing watermelons. The neighbor was an old hand at it, and used Peruvian guano as a fertilizer. Mr. Stebbins asked him if he did not think turkey manure would answer about as well. The neighbor thought it probably would ; and, sure enough, the melon-patch fertilized with turkey manure shot ahead of the other. The vines were of better color, larger, and actually produced more melons. But now just hold your breath a little. The neighbor's melons, fertilized with guano, were ready for market about a week ahead of the other, and the crop sold for *eighteen hundred dollars*. The rank growth caused by the turkey manure made this patch later, and how much do you suppose friend Stebbins got for his melons? Why, just *eighteen dollars* instead of *one hundred times* that amount !

Friend Stebbins has some land that is not very valuable ; and some time ago, noticing, as many of us have done, that blackwalnut-trees are commanding tremendous prices, he started to grow walnuts, and has now a 22-acre walnut grove with trees six years old, and almost an even stand. He planted two walnuts in a place, and pretty nearly all of them came up. A single walnut-tree, good size, often brings $100 ; and I think we have accounts in the papers of trees that brought two or three times that amount right where they stood in the woods. We may not all live long enough to see walnut-trees grow to be worth these prices, but how about the children who are coming after us? Who will plant walnuts as well as basswoods?

As soon as I reached home friend Stebbins kindly gave me some facts in regard to the gardening around Norfolk, which I gladly submit, as they may correct some errors I may otherwise have fallen into.

TEMPERANCE AMONG THE NORFOLK TRUCKERS, ETC.

All that section known as the "Western Branch," comprising about one hundred square miles of land, bounded by the Dismal Swamp, the western branch of the Elizabeth River, Hampton Roads, and the Nansemond River, where the finest truck gardening I ever saw is done, is under a strict unwritten *prohibition* law, and it is enforced by the best people, with an iron hand.

Although there are perhaps 50 stores within that territory, not one of them could run there a week and sell liquor. The good people simply *won't* have it; and while the temperance sentiment does not make that salubrious climate, it does put tile-trains in the fields, builds fine houses and barns, buys horses, farm-tools, makes fat bank accounts, and happy people. God grant that it may always remain so. [*Amen !*—A. I. R.]

You noticed how straight the rows were in the fields. Now, straight rows are considered an essential to success in trucking; and a trucker who would allow such crooked rows in his fields as I have *seen*—yes, sir, *seen*—in Ohio would be hooted and jeered until he straightened them or got out of the community. There are four things necessary in making straight rows; in fact, there are five : Even, well-tilled ground; a light one-horse plow; a tall man; a small intelligent horse or mule (a mule is considered to be better); and last, but not least, a pair of six or eight sided sticks 12 or 14 feet long, perfectly straight, supplied with iron socket and point at one end for sticking in the ground, and painted red and white like a surveyor's pole. First a straight row is made by the use of these two poles, using the space between the mule's ears as a third guide. The rows are first laid off double distance, the row-maker in his return "splitting out" the middle row, otherwise three stakes would be imperative. Every trucker has one or two men who do this work; and great pride is taken, both by trucker and man, in the even widths and straightness of their rows.

It might be well to mention that the row-maker always sights some object in the distance just before passing the first stick, which he pulls up and again places exactly two rows distant from where it stood, the last one being done in the same way, stopping the mule to do it just before reaching the poles

And now, friend Root, allow me to add, for the information of all who contemplate coming South to live, that the greatest mistake they can make is to think that the same methods in successful use in the North are what are needed to make a success here; for verily I say unto you, it is a whopper, and will ruin any man who tries it on, as many a man has found to his cost. I do not mean to say that the methods the generality of people apply here are the best that can be done—far from it; but I do say of a truth that their methods are better for this region than those in use at the North, *if applied here*. I know whereof I speak. I have been here eighteen years, and have had experience in many things. We need Northern men and their families here, and we need lots of them. There is a living in this country for many who are willing to work; but kindly tell them to leave their old methods at home. JOHN W. STEBBINS.

Broad Creek, Va., May 26.

I had just one chance to see strawberry-picking going on in the regular business way. Mr. Trotman had received intelligence from Boston that berries were up to 12 cents, and, in fact, I believe *he* had kept picking right along. You see when the fields are once abandoned they can not very well start again, because rotten or overripe berries would get among the good ones in spite of the pickers ; therefore the proprietor of a strawberry-field must keep the pickers going till he decides to stop, and then he must stop for good. When I saw the pickers in the field I said to friend Stebbins, "There must be very nearly a hundred people who are gathering berries." I have been so much in the habit of estimating the number of hives in an apiary by simply a casual glance that I thought I could guess pretty nearly at the number of people scattered through the patch. Friend Stebbins counted them, and reported 104. There were all sorts of people—big and little, old and young, black and white; but for all that, every thing seemed to go on very harmoniously and quietly. Little colored boys, who seemed hardly big enough to carry a quart of berries, would march in with a tray on their heads, and offer their filled quart boxes and get their tickets. Some of them did not have very elaborate clothing, but they always arranged to have a pocket that would carry their *tickets* safely. A smart colored man received the boxes on a sort of counter, letting the picker take his tray back to the field. The proprietor's son was stationed near by with tickets of different values stowed in handy pockets; and he always had the proper ticket or tickets to hand out just as soon as the picker was ready to go back.

We happened to be there just as the dinner-bell sounded, and it was a treat to me to see that motley crowd come in. God knows I am interested in human beings as well as in strawberries; and I was greatly pleased to see the pleasant feeling that seemed to exist between employer and employee. Friend Trotman pays two cents a quart right through for picking the berries. He said it was a little more than some others paid, but he liked to have his workmen satisfied. I asked him where he found his most expert pickers — among the men, women, or children. He said a colored widow woman and her two little bits of children (it might have been three) were about the best pickers he had in his employ. He said he had recently paid her $23 in cash for one week's work with herself and children. Some of those little colored boys and girls were remarkably quick and handy at the business. You see it is not so much work for them to double up and stoop over as it is for older people. In the rush at noon time it was almost impossible to prevent some confusion and disorder. I was pleased to see Mr. Trotman gently reprove a colored man for tramping on a good new berry-box. Somebody tipped them over, and in the hurry to get ready for dinner they were not picked up. The man put his foot on a nice clean box. Now, the value of these boxes is not much over a quarter of a cent each; but letting the people trample the boxes under foot, even if they represent only a small value, establishes a bad precedent. It always pains me to see property wasted. Waste not, want not. We received a warm invitation to take dinner with the proprietor; but other plans for dinner had been made.

Special Notices by A. I. Root.

THE BRANDYWINE STRAWBERRY.

At this date, June 13, the greater part of our strawberry-picking is over; but to-day we are picking Brandywines almost as large as small peaches, and ever so much more luscious than any peach, in my opinion, and we are selling them at the ridiculously low price of 5 cts. a quart; half-bushel, 4 cts. a quart. The Brandywine, besides its other good qualities, can remain on the vines, without rotting or getting soft, longer than any other variety I know of; and this has been an exceedingly valuable quality during this year of gluts in the markets and exceedingly low prices.

STRAWBERRY-PLANTS IN JUNE AND JULY.

Yes, new plants can be furnished, but it is pretty expensive business; because, if you take off the first plant as soon as it is firmly rooted, it spoils all that is beyond it; and you have to hunt over your patch even then in order to find them sufficiently well rooted to be sent safely by mail; and, in fact, the only way to send them out so there is almost no danger at all from losses in planting during the hottest month of the year is to send potted plants; and to go by mail they need to go potted in jadoo fiber. We are now ready to fill orders for a few kinds, potted in jadoo fiber, say Nick Ohmer, Carrie, and Margaret; and we can furnish any of them in our list on ten days' notice; but we should not like to sell them at this season of the year for less than 5 cts. each, postpaid by mail. Nick Ohmer will be 10 cts. each. In the latter part of July and August we shall be able to make better prices. I suppose the friends know, of course, that a strawberry-plant put out the first of July, or a little earlier, will make a great number of plants before winter if it is properly cared for.

SPECIAL NOTICES BY BUSINESS MANAGER

HIGHER PRICES ON ALL WIRE GOODS.

Owing to continued advances in the price of wire we are obliged to withdraw all prices on wire nails and wire goods, and will quote prices on application. We will try to have new lists of prices made up for next issue. In the meantime orders will be filled at the lowest price we can make, consistent with the market.

WANTED, QUEENS.

We are having an exceptionally large call for queens this season, and are not able to supply the demand; and, worse still, we are not able to get queens from the South from regular breeders as fast as we can use them. If there are others who have good untested queens to spare we wish they would send in their names *at once*, with price asked in dozen lots. Inferior queens, old queens, scrubby queens, little and black queens, we will not take at any price.

ADVANCING PRICES.

Owing to the continued advance in price of all kinds of metals, a general revision of prices of articles, composed principally of metals, will have to be made in the near future. The prices of all kinds of lumber have already advanced an average of about $4.00 per 1000 feet, and the upward trend in prices still continues. This will make necessary a revision in prices of almost every thing in our catalog. If you are at all likely to need supplies of any kind in our catalog, you will not buy cheaper than now, but are likely to pay higher prices before another season rolls round.

A B C OF BEE CULTURE OUT OF PRINT.

The demand for this popular work has been so brisk for the past year that the edition was entirely exhausted several weeks ago. At the rate it had been selling we calculated that we should have enough to last till next fall. It is desirable to have each new edition fully up to date, and we did not begin the new edition till March, believing that would be time enough to get it completed before the old edition was sold out. A large amount of revising and rewriting is needed, and the work progresses slowly. It is likely to be September before the new edition is complete. In the meantime we have orders booked for hundreds of copies, many of which are urgently needed. If any of our readers know of any books that are available we should like to get track of them. We will trade a copy of the new edition, when done, for new books of the old edition. If you have any to spare, write us; but don't send the books, as we may want them sent direct to customers, and thus avoid one mailing with the necessary stamps. In this trade we should expect you to pay one postage at least. We want to accommodate those who are in urgent need of the books, and can not well wait till the new edition is completed.

How Pictures add to the Usefulness and Beauty of a Journal.

* * *

READING page after page of labored description ofter fails in giving so clear an idea as a single glance at a picture. With this idea in view the Bee-keepers' Review uses pictures whenever it can in this manner bring out ideas more clearly. Not only this, but it sometimes gives a picture, as a frontispiece, in which beauty plays no small part.

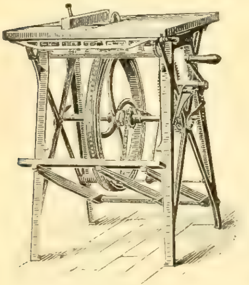
In supplying the Review with pictures there is a great advantage in the fact that its editor is an enthusiastic amateur photographer; ever ready with his camera to catch any object of interest that may appear in his apiary. If a subscriber sends him a new hive, or super, or implement, it is an easy matter for him to lay a picture of it before his readers. Not only this, but he also makes frequent trips among beekeepers taking his camera with him, and bringing home as trophies, views of apiaries, etc., to be used in brightening the pages of the Review.

Aside from their value in making more clear the meaning of accompanying reading matter, good pictures are not only a source of pleasure to the beholder, but they exert an influence that is elevating and refining. The pictures in the Review are really an important feature.

Send 10 cents for three late but different issues, and the 10 cents may apply on any subscription sent in during the year.

* * *

W. Z. Hutchinson, Flint, Mich.



Barnes'

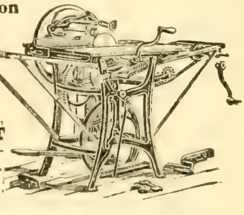
Hand and Foot Power

Machinery.

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, boxes, etc. *Machines on trial.* Send for illustrated catalogue and prices.

W. F. & John Barnes Co.,
545 Ruby St.,
Rockford, - - Ill.

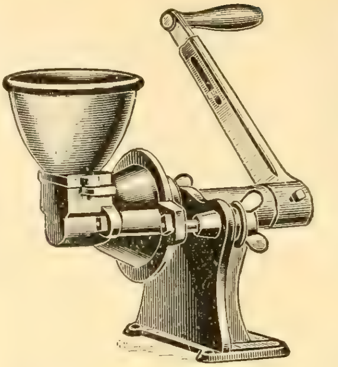
Union **Combination SAW.**



For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line **FOOT and HAND POWER** machinery. *Send for Catalog A.*

Seneca Falls Mfg. Co.,
44 Water St. Seneca Falls, N Y

FOR SALE.—Japanese buckwheat for seed. Price $1.00 per bushel, f. o. b. Lehigh Valley R. R. Bags free. C. J. BALDRIDGE, Kendaia, Seneca Co., N. Y.



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Be your own Miller....

Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**

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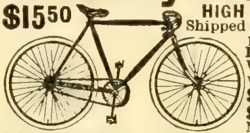
$15.50 **HIGH GRADE BICYCLES.**



Shipped anywhere C. O. D., with privilege to examine. Latest styles for Men, Women, Boys and Girls, well made and durable.

$60 "Oakwood" $24.50
$50 "Arlington" $22.00

No better wheels made. Others at $10, $13.50, $15.50, $17.50 & $19.50; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

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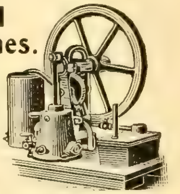
Pierce FARM Engines.



3-4 and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. **Pumping Engines** all sizes. Send for circulars stating size and for what use.

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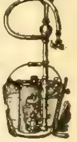
SPRAYING

with our new patent

Kerosene Sprayers



is simple indeed. Kerosene emulsion made while pumping. 12 varieties sprayers, Bordeaux and Vermorel Nozzles, the **"World's Best."**

THE DEMING CO., SALEM, O.

Western Agents, Hennion & Hubbell, Chicago. Catalogue and formulas free.

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CHAS. ISRAEL & BRO.,
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Honey and Beeswax.

Liberal Advances made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

HILDRETH & SEGELKEN,

120-122 WEST BROADWAY, NEW YORK.

Jobbers and Commission Merchants.

Honey, Beeswax, Maple Sugar and Syrup.

We desire to inform our friends and patrons that our firm has been reorganized and additional capital added. The business will be conducted under the firm name and style of

HILDRETH & SEGELKEN,

at the old stand, where we have had the pleasure of serving our friends for the past 11 years. Management and supervision will be the same ; and our business methods, those of square and honest dealings, will be practiced as heretofore.

We believe we have won the esteem and confidence of our shippers throughout the country, and that our dealings, as a rule, have been of the most pleasant nature.

Our additional capital will put us in a position to increase our already large business still farther, if possible, and at same time enable us to treat our shippers even more liberally than heretofore, in making advances, etc.

Records will show that we handle by far the bulk of all the honey sent to our market. We make honey the principal part of our business, are personally acquainted and have trade connections all over the country, which enables us to handle any amount of honey to better advantage than any other house.

Our old shippers know us and will bear us out in what we have said. Those bee-keepers who do not know us, and have had no dealings with us, we would cordially invite to correspond with us and make our acquaintance.

We not only handle on commission but buy largely as well, from small lots to carloads, for spot cash. We wish to call the attention of southern bee-keepers to the fact that our market never was in better condition than this season. Old stock is disposed of and the market is bare, with a good demand. New crop will find ready sale and at higher prices than have ruled for years past. We would advise them to send their honey while there is a good demand at good prices, as later on conditions of the market may change. We also handle maple sugar and syrup very extensively, and would be pleased to hear from those having any of these goods to market. In conclusion we wish to extend our thanks to all of our shippers for their past favors and trust to receive their kind consideration in the future.

In writing, mention GLEANINGS.

THE BEST OF ITALIAN QUEENS.

BY RETURN MAIL.

Large yellow queens, healthy and prolific. Workers gentle and the best of honey-gatherers. Tested, $1.00 each. Untested, 75 cents; $7.00 per dozen. Send for our price list.

J. W. K. SHAW & CO.,
Loreauville, - Iberia Parish, - Louisiana.
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Italian and Hybrid Bees and Queens for Sale by the Pound.

Bees, per lb., during June	$1.00.
Bees, per lb., during July	.75.
Three-frame nuclei, June	2.50.
Three-frame nuclei, July	2.00.
3-frame nuclei without queen	50c less.
Full colonies during June	4 50.
Full colonies during July	3.00.
Untested queens	.75.

No foul brood or any other bee-disease in this vicinity. Bees will be carefully packed and shipped promtly. Safe arrival and satisfaction guaranteed.

Reinhard Stehle, - Marietta, Ohio.
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Queens by Return Mail

from a queen specialist; bred from swarming-cells. Every queen warranted to reach purchaser in good condition, and to produce well-marked 3 banded workers. Price 75 cts. each.

JAMES WOOD, North Dana, Mass.

Italian Queens.

Pure-bred, five-banded Italian queens 75 cents each. Tested, $1.00 each. **Daniel Worth, Falmouth, Rush Co., Ind.**

FOR SALE.—Lady's 2d-hand wheel (Crescent), 1898 pattern, $18.50 cash. H. H. SHANE, Medina, O.

Wants and Exchange.

WANTED.—To exchange firearms of every description for old clocks (grandfather).
W. S. AMMON, 216-218 Court St., Reading, Pa.

WANTED.—To furnish my hives and sections, to careful men, for a share of No. 1 clover honey. Also 4 sizes of the prize comb-honey cartons, and 68 pages of "Facts about Bees," for 6 cts. in stamps.
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WANTED.—To exchange jewelry or bees for a good incubator. DR. CORYA, Dupont, Ind.

WANTED.—To exchange a good farm seven miles from Schenectady, N. Y.; good location for bees; with or without apiary, for improved Florida property; store or house and lot in the vicinity of Orlando preferred. Address P. O. Box 27, Grooms, N. Y.

WANTED.—To exchange for offers, one 400-egg-size incubator and brooder. Reliable, hot water, good as new. CHAS. H. THIES, Steeleville, Ill.

WANTED.—To exchange a well-broken setter, full pedigree, for a good double-barrel breech-loading shotgun; also a $30 violin, for a 2d-hand Barnes foot or hand power saw, or a combination Union saw.
F. A. WHAN, Raymilton, Pa.

WANTED.—To correspond with an active young man who has had some experience in bee-keeping, and is willing to work. A splendid opportunity for the right man. Address JUAN RAVELO, Craycraft, Havana Custom House, Havana, Cuba.

Golden Italian Queens.

Warranted purely mated; all queens by return mail; will run 1200 nuclei; queens reared by Doolittle's method; safe delivery and satisfaction guaranteed; have 11 years' experience, and know what good queens are. Price 75c; six for $4.00. Selected, $1.00; six for $5.00. After July 1st; 50c each; six for $2.75. Selected, 75c; six for $4 00. My queens are prolific, and workers industrious as well as beautiful to look at. Hundreds of testimonials prove this. Just now I have a nice lot of queens which have just started to lay. Order at once, and I will send you something fine.

Special low price on queens in quantities. Address

H. G. Quirin, Parkertown, Erie Co. Ohio.
MONEY-ORDER OFFICE, BELLEVUE.
In writing, mention Gleanings.

Fruit Packages of All Kinds.

—ALSO—

BEE-KEEPERS' SUPPLIES. . .

Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX Co.,
Berlin Heights, - - Erie Co., Ohio.
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QUEENS. Either five-banded golden or from imported Italian mothers. A few breeders at $2 00 each; tested, $1.00, or 6 for $5.00; untested, 75c, or 6 for $4.00. B. P. Rock eggs, 75c for 13. **CHAS. H. THIES, Steeleville, Ill.**

Untested - Italian - Queens.

Fifty cents each; warranted 1st-class. Tested queens, $1.

W. C. Gathright, Dona Ana, New Mexico.

Adel Bees ARE not Italians; they are GOLDEN Carniolans, and practically a non-swarming, non-stinging strain of bees, great honey-gatherers, and sure to winter. Tested queens, each, $1.00; six queens, $5.50, or $9 00 per dozen. Every thing guaranteed. Book giving 37 years' experience in rearing queens sent free.
HENRY ALLEY, Wenham, Mass.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2 50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1 00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.
W. H. LAWS, Lavaca, Seb. Co., Ark.
In writing, mention Gleanings.

MY QUEENS are carefully bred from best **selected mothers** by Doolittle's method; golden strain. **Working qualities**, not color, is my aim. Nearly 500 lbs. of honey was reported by Harry Mitchell, Hawks Park, Fla., from one colony with one of my queens. Prices: **Warranted**, 75 cts.; six, $3.50; dozen, $6.50. From three-band mother, same price. Free circular.
J. B. CASE, Port Orange, Fla.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

Selection.

SELECTION has been the chief factor in the development and building up of our improved breeds of horses, cattle, sheep, swine, and poultry. Men have devoted the best years of their lives to a single line or branch of this work—and not without their reward.

In bee-keeping but little has been done in this direction. The development of a bright yellow bee has been the most noticeable thing that has been done in this line. This is the most easy of accomplishment, as results are so quickly and easily discernible. To breed for honey-gathering qualities is a much slower process. As soon as bees hatch out we can decide in regard to their color, and as to whether we wish to rear queens from their mother for the purpose of improving the color of our stock; to decide in regard to their working qualities requires months — perhaps years.

Every experienced bee-keeper must have noticed how much more surplus is stored by some stocks than by others. Time and time again, when visiting bee-keepers, have I been shown some particular colony, and heard the owner tell with pride how much honey it had stored year after year; always coming through the winter in good condition, or doing this or that that was so desirable. The strange thing is that bee-keepers so seldom seem to realize the value of such a colony, or queen, as a starting-point from which to improve the stock of their whole apiary. If they do realize it, they seldom take advantage of the knowledge.

Suppose, by the introduction of improved stock, a man can increase his surplus, on the average, one year with another, ten pounds per colony, and that is not an extravagant estimate, on 100 colonies his crop would be increased 1000 pounds. The cost for hives, grounds, labor, wintering, etc., is nearly the same with one kind of stock as with another, just as it costs as much to keep a scrub cow as it does to keep a Jersey, and a gain in surplus that comes from improvement in stock is the most profitable that can be secured.

To improve your stock, get the *very best* that you can for breeding purposes, and with this stock your apiary; then watch carefully, and breed from those colonies that do the best. Continue this, year after year, and you will be surprised at the result.

This matter of beginning with as good stock as you can get, is all-important. Don't lose years of time by commencing with common or inferior stock. Get the best; and thus be able to commence right where some other breeder left off.

As stated in former advertisements, I have the handling of queens from a stock of Italians upon which a good man has been at work for twenty years; selecting the best honey-gatherers *each year* to breed from, and crossing them, so far as possible, with drones not akin. To produce a superior strain of bees has been his sole aim during all these years; and my experience with this strain, and my correspondence with others who have tried it, have proved to me that he has attained a fair degree of success. The chief value of this stock lies in its industry—its ability to store large quantities of surplus. Then comes its hardiness—its ability to winter well. Then it is very peaceable—easy to handle. It also caps its honey white—as the blacks do theirs.

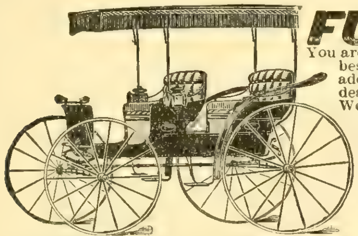
If you are interested in this matter, and have not read my advertisements in the last three issues of Gleanings, turn back and read them, as they give particulars not given here.

The price of these queens is $1.50 each; but note the conditons I guarantee safe arrival, safe introduction (if instructions are followed), purity of mating, and, any time within two years, if a purchaser is dissatisfied with his bargain, for *any reason*, he can return the queen and get his money back, and 50 cents besides for his trouble.

I said that the price would be $1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the REVIEW. Any one sending me $1.00 for the REVIEW for 1899 can have one queen for $1.00; that is, I will send one queen and the REVIEW for 1899 for only $2.00. Of course, this special offer is made for the sake of getting the REVIEW into the hands of those who are unacquainted with its merits.

* * *

W. Z. Hutchinson, = = Flint, Michigan.



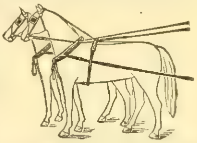
FULL VALUE For the Money.

You are entitled to that. It does not mean simply that you should get the best goods for the money, but also that you should be saved the added expense of agent's commissions, dealer's profits, salesmen's expenses, etc. We save you all this by selling you direct from our factory at wholesale prices.

We are the largest manufacturers in the world selling vehicles and harness to the consumer exclusively.

We make 170 styles of vehicles and 65 styles of harness. We ship anywhere for examination and guarantee everything. Send your name on a postal card for ***Free Illustrated Catalogue.***

No. 316—Two-Spring Carriage, with side curtains, storm apron, sunshade, lamps, fenders, pole or shafts. Price $58; same as usually sells for $85 to $90.



No. 100—Double Buggy Harness. Price, full nickel trimmed, $17; as good as retails for $25.

ELKHART CARRIAGE & HARNESS MFG. CO. W. B. Pratt, Sec. **ELKHART, INDIANA.**

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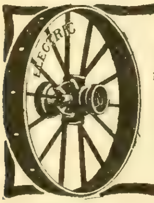

MONEY SAVED IS MONEY EARNED.

If you buy an article of the proper quality you immediately cut off the expense of repair. To save repair saves money. To save money earns money. You stop all expense of repair when you buy a set of

ELECTRIC STEEL WHEELS.

They neither **break down, warp, rot, get loose or shed the tire** and last indefinitely. Made to fit any skein, any height, any width of tire. Send for free illust'd catalogue of these and our ELECTRIC HANDY WAGON.

ELECTRIC WHEEL CO., Box 95 **QUINCY, ILL.**

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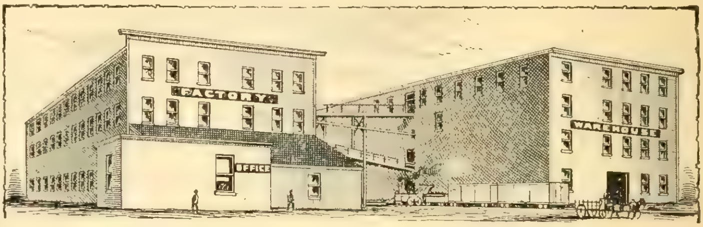
Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

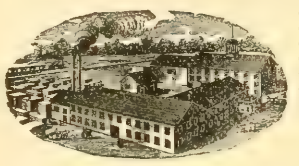
We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.



Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.



BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **Tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address E. KRETCHMER, Red Oak, Iowa.

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The Luxuries of Yesterday are The Necessities of To-day.

Twenty years ago, comb foundation was a luxury. To-day it is a necessity. We sell the Weed Foundation—the best made. Root's sections to go with them are unparalleled. Send for catalog. If a dealer, get our wholesale list. Beeswax wanted.

M. H. HUNT & SON, Bell Branch, Wayne Co., Michigan.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

QUEENS. Untested after May 1st, 70 cts.; 3 for $2.00; 6 for $3.75. Select tested, $1.00 each; 6 for $5.00. Extra select breeding queens, $2.00 each. The very best of golden Italian.

E. A. SEELEY, Bloomer, Ark.
P. O. M. O. Office, Lavaca, Ark.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Italian BEES AND QUEENS. Queens, $1.00. Bees by the lb., $1.00. Nuclei, two frames with queen, $2.00; one frame, $1.50; each additional frame, 50 cts. each. **Mrs. A. A. Simpson, Swarts, Pa.**

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

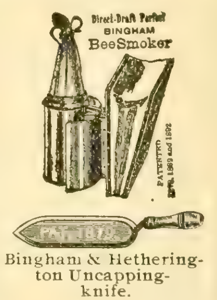
Smoke Engine (largest smoker made.)	4-inch	stove.	Doz.	$13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	"	9.00;	"	1.10
Conqueror	3-in.	"	"	6.50;	"	1.00
Large	2½-in.	"	"	5.00;	"	.90
Plain	2-in.	"	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	"	4.50;	"	.60
Honey-knife			"	6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

DETROIT.—No comb honey to quote, and new crop will find a fair market, with the exception of some poor dark lots. Extracted dull, and with little in stock at 5@7. Beeswax, 24@25.

June 24. M. H. HUNT & SON, Bell Branch, Mich.

CLEVELAND.—We quote our honey market as follows: Fancy white, 13@14; No. 1 white, 12@13; fancy amber, 10@11; No. 1 amber, 9@10; white extracted, 7@7½.

A. B. WILLIAMS & Co.,
June 19. 80-82 Broadway, Cleveland, Ohio.

ALBANY.—Honey well cleaned up, with but very little demand. Prices about same as last. Think when new comes there will be a good outlet, as old will be all sold then. Beeswax, 26@28; quiet.

MACDOUGAL & Co.,
Successors to Chas. McCulloch & Co.,
June 21. Albany, N. Y.

PHILADELPHIA.—There is some Southern comb honey arriving in the market, but no demand yet, and prices are unsettled. The price of extracted honey is a little higher, but not much demand. We quote white, 8@9; amber, 7@8; dark, 6@7. Beeswax, 26. We are producers of honey, and do not sell on commission.

WM. A. SELSER,
June 19. 10 Vine St., Philadelphia, Pa.

CHICAGO.—Not any comb honey on the market except buckwheat and other dark grades. We look for new crop to start in at 13 cts. for best grades of white; light ambers and off white, 10@12. Extracted selling at 5@7 for ambers, and 6@8 for white, according to quality, color, and package. Beeswax steady at 26@27.

R. A. BURNETT & Co.,
June 19. 163 S. Water St., Chicago, Ill.

FOR SALE.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60-lb. cans for $7.20.

THE ARKANSAS VALLEY APIARIES,
OLIVER FOSTER, PROP.,
Las Animas, Bent Co., Colo.

Adel Bees ARE not Italians; they are GOLDEN Carniolans, and practically a non-swarming, non-stinging strain of bees, great honey-gatherers, and sure to winter. Tested queens, each, $1.00; six queens, $5.50, or $9 00 per dozen. Every thing guaranteed. Book giving 37 years' experience in rearing queens sent free.

HENRY ALLEY, Wenham, Mass.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

BEE-SUPPLIES.

ROOT'S GOODS--ROOT'S PRICES

MUTH'S HONEY-JARS,
MUTH'S HONEY-EXTRACTORS,
LANGSTROTH HIVES,

and every thing pertaining to same; in fact, every thing used by bee-keepers. Send for our catalog.

WANTED---EXTRACTED HONEY.

I am now in shape to BUY extracted honey, either in large or small lots. Parties in the South, or in Kentucky, Indiana, Ohio, or West Virginia having any to offer will do well to sell to me, as Cincinnati is the greatest market for extracted honey in the States. Submit a small sample, stating quantity, style of package, and price expected.

C. H. W. WEBER,
Successor to Chas. F. Muth & Son and A. Muth.
2146-8 Central Ave., Cincinnati, O.

References.—Western German Bank, Brighton German Bank Co., of Cincinnati, Ohio.

In writing, mention GLEANINGS.

GLEANINGS AT REDUCED RATES

We do not need to tell about our journal, for it will speak for itself; but as an extra inducement we make the following low offers:

OFFER NO. 1.

For 25 cts. we will send GLEANINGS from the time your subscription is received till Jan., 1900. If you send in your order promptly you will get 6 months for only 25 cts.

OFFER NO. 2.

For $1.00 we will send an untested Italian queen, worth 75 cts., and GLEANINGS one year.

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For $1.00 we will send GLEANINGS the rest of this year, and all of next year; that is, from the time your subscription is received till Jan., 1901. The sooner you take advantage of this offer, the more numbers you receive.

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GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
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STRAY STRAWS FROM DR. C. C. MILLER

RAMBLER SUGGESTS (p. 469) that it was the odor of the dinner that brought to the ground those bees I batted at the out-apiary. Hadn't thought of that. Might be. Sort of intoxicated with the delightful odor of strawberries, and fell in a faint—or a feint.

A. I. ROOT enumerates (p. 477) the various pockets in which he keeps clean handkerchief, dirty handkerchief, toothpick, etc., but forgets to say that he keeps his nightcap in his overcoat pocket, and always puts it in my overcoat pocket when we sleep together.

THE DIRECTOR of the School of Horticulture at Villorde, France, placed a colony of bees at the disposal of his peach-trees, under glass, at the time of blooming in February. The crop, previously scant, was now unreasonably heavy. —*Le Progres Apicole*. [So on it goes. The proof piles up.—ED.]

TO URGE bees into supers, and to prevent swarming, a French bee-keeper closes the regular entrance and gives the bees for 18 days an entrance through the super. Six colonies thus treated filled their supers, while the rest of the apiary preferred to swarm. Editor Bertrand thinks the plan worth trying. [So think I. Suppose, doctor, you try it.—ED.]

JUNE 19. Oceans of white clover, but not a drop of honey in supers yet. [Too early yet for your locality, or at least I hope so. Elsewhere you speak of the lateness of your strawberry season as compared with ours; but at this writing I am beginning to fear, from reports that have come in, that clover is not going to amount to very much, notwithstanding the splendid show in many localities.—ED.]

I HAVE BEES in two of the Draper barns. The first queen didn't take kindly to the deep frames, and for several days wouldn't touch one of them—just stayed on the shallow frame of brood I gave. But there was no flood of honey. [We have several of the Draper barns in use, but they are so very large that our eight-frame colonies will do well if they even fill the brood nests this season, to say nothing about filling the supers.—ED.]

THE TESTIMONY of one man who saw Smith commit murder outweighs the testimony of ten men who didn't see him. Messrs. Taylor, Hutchinson, and Brice say they can't raise good queens by taking away the queen. W. W. Somerford (p. 465) says he *has* raised them. The only thing for T., H., and B. is to impeach the character of the witness. Does W. W. S. know enough to tell what a good queen is?

MRS. BARBER, I'm by no means a "big man," and you needn't be afraid to talk back to me. But my bees are not like yours in one thing—they don't fill the bait section and leave the others untouched "usually." If there is almost no honey coming, they'll do as you say; but if honey is coming they'll go right on with the other sections. But if you want that amount of extracted honey, then the shallow super is the best thing to put on first.

STRAWBERRIES were mostly picked at Medina June 13, and were selling by the half-bushel at 4 cts. a quart (p. 481). At Marengo the picking has only fairly commenced, June 20, and strawberries sell at 10 cts. a quart by the case. Sometimes it's better to be late than early. Three or four weeks ago we had strawberries from the South at 5 cts. a quart. [This shows that our locality must be considerably ahead of yours in its seasons, and it only goes to show that, while we may be half through with our honey-flow, yours, perhaps, may have only just begun.—ED.]

I DON'T QUITE SEE any thing in the testimony of B. F. Onderdonk, 464, to show that one should produce both comb and extracted. If I could get the prices he does for extracted, I don't believe I'd fool with comb. [Are you sure, doctor, you could not get his price for extracted if you produced a twelve-pound-to-gallon fancy article? If you try the Dan White plan I am not sure but you would be quite an extracted-honey fiend. In these days of adulteration, consumers, if they *know* the producer, and know that the goods come direct from that producer, will pay fancy prices for what they are sure is real honey. It is the distrust consumers have as to the purity of Chicago extracted that keeps down the price. —ED.]

PLEASE WATCH what bees do when the queen is taken away, and see if they make the mistake of choosing larvæ more than three days old, for queen-rearing. I'm watching, and so far they have chosen only young larvæ. Here's what I *think* : That bees will never select larvæ too old if those of proper age are present, but queenless bees are not satisfied to stop with what they first start, and afterward, for want of better, use larvæ that are too old for good queens. [If I were not so very much crowded just now in the revision of our A B C book I would watch ; so I shall have to let the other fellows do it this summer.—ED.]

FOR END-SPACERS for brood-frames, I thought nails driven in slanting would be better than staples, because the slanting nails would make the frames slide into place automatically. For more than a year I've given both kinds a thorough trial, and the staples are away ahead. It's true, the nails let the frame slide into place automatically, but they also let it slide out of place automatically, and it's a nuisance to have the end of the top-bar drop down inside, which it can't do with staples. [Your experience, doctor, is about the same as mine, and that is the reason we adopted staples in preference to a nail driven in slanting, *a la* Boomhower.—ED.]

HERE'S THE THING to try, Mr. Editor. On half your colonies put supers with at least one bait section in each. On the other half put shallow supers and follow with sections after your plan. After the bees are well at work in these last sections, compare the work with that in the other lot. If they're ahead on your plan, and if one extracting-super will work for six colonies, then I want to use your plan. [No, you try it, doctor. I can not do it this season. We have had such a rush of orders for queens and bees, owing to the heavy losses in wintering over the country, that we have had to turn almost our entire apiary into a mammoth queen-rearing yard—just *had* to do it—and let all notions of comb-honey production this season go to the winds. For all that, I am stealing a few colonies in Draper barns, and will have them in the basswood apiary by to-night.—ED.]

MR. EDITOR, you owe Niver an apology for saying (p. 473), "when he gets his tongue balanced." Niver doesn't have to *get* his tongue balanced. It's always balanced. I slept in the same room with him at the Buffalo convention, and, no matter what time in the night Niver woke up, his tongue was always on balance. You can't tell how Niver talks by seeing what he says in print. There's a charm in the way he says a thing that the cold types can't show. [That is true; but I had one of our men snap a kodak on Niver while he was in an animated discussion, his hand keeping time with his "balanced tongue," his eyes fairly twinkling with enthusiasm. Yes, and the picture took in your humble servant at the same time. Well, in our next issue I will try to give you a view of Niver and me in one of those "delightful confabs;" for we had lots of 'em.—ED.]

I NOTICE that, in his article in this issue, J. M. Hambaugh speaks of hive-covers as "lids." Some little time ago S. T. Pettit argued in favor of short expressive terms, and asked what objection there was to the use of the word "floors" instead of the long term "bottom-boards." Personally I like both of the short names, and would not object to having such terms used in GLEANINGS. Why not "lids" for "covers"? why not "supers" for "surplus-honey receptacles"? and why not "floors" for "bottom-boards"? Such changes as these would save the use of more type than the short spelling adopted by the *American Bee Journal*, and yet would offend the taste of none. GLEANINGS is in favor of the short spellings, but does not yet see its way clear to adopt them; but it can see no objection to the use of "lids," "floors," "unqueen" or "dequeen," and other short expressive terms.

FRUIT-TREES, especially apple-trees, make fine shade for bees. But orchards, especially in some parts of the West, are rather short-lived, and forest-trees are better. I visited one of Adam Grimm's apiaries that was in a clump of young lindens, and it was fine. I'm not sure but I like better a clump of burr-oaks in which my Hastings apiary is located. It's just about ideal. [While you were about it, doctor, why didn't you say that your preference was for trees instead of shade-boards? Although you have never stated your preference, yet from the very fact that two of your apiaries that I saw were located among shade-trees I am led to believe this is your belief and practice. I spoke of fruit-trees, especially apple-trees, because there is usually a grove of them near or in the rear of most homes. At our basswood apiary the hives are shaded by lindens. But in any case I would not care to have the trees too large; for then when swarms come out they are liable to get on the topmost branches beyond the reach of ladder or climber. In such cases, all one can do is to let them go or try the efficacy of a shotgun, *a la* W. F. Marks.—ED.]

G. M. DOOLITTLE says, in *American Bee Journal*, "I never saw a single worker-bee from an imported queen that had any *yellow* on it at all. The color was always a maroon, chestnut, or leather color, not yellow." My imported queens, or those that I bought for imported, have always had workers that I called yellow. Now the question is, Have I been swindled, or has some one been working off maroon bees instead of yellow on Doolittle? I don't believe I ever saw a dozen imported Italian queens, and I doubt whether Doolittle has seen many more than I, for I've been buying since he thought no more importations were needed, and at Medina you've had perhaps more imported queens than at any other place. Please tell us, are the workers of an imported Italian queen yellow or maroon? [I do not know where friend Doolittle gets his notion of colors ; but if he will consult his good wife I feel sure he will have to revise his idea somewhat. I do not think I am boasting when I say that I have seen perhaps fifty imported queens where Doolittle or yourself have seen one; for we import from 50 to 75 every year. Years ago, as you say, Doolittle went on record as saying that he believed further importation was unnecessary, so I take it he has not seen an imported queen for some time. The color-bands, both on bees and queens, are what are generally called "leather" color. I never saw one queen or bee direct from Italy that had bands that were either chestnut or maroon. Maroon? my, oh my! what's the matter with Doolittle's eyes? To my notion these colors are the same as those given in the Standard Dictionary, the latest and best in the English language, under the heading of "Spectrum." Strictly speaking, the yellow on the Italians is not exactly yellow, but leather-colored; but when we use the term "yellow" we usually mean it in the broadest sense, and that may mean from a leather color to a lemon yellow. To say that Italian queens and bees do not have any yellow on them is to pervert the word from its ordinarily accepted meaning. We say that the sun rises in the morning. While the statement is not correct, the phrase has an accepted meaning; in the same way, yellow, when applied to Italians, conveys an impression to the average person that is not misleading.—Ed.]

PICKINGS

FROM OUR NEIGHBORS' FIELDS.

BY STENOG.

"Bring out your guns, all you that has 'em,
And blaze away with enthusiasm!
The basswoods now their nectar ooze,"
Says Drone, "and *we* have not an hour to lose."

* * *

BEE-KEEPERS' REVIEW.

Dr. C. C. Miller corrects himself by saying the "Adel" bees are a strain of Carniolans instead of Italians.

* * *

In cases of dysentery among bees, Dr. Miller says he has found a temperature of 60 or 80 degrees in the cellar productive of no bad results. The bees make a loud roaring, but settle down quietly afterward.

* * *

C. Davenport says: "Empty hives should be kept in a cool place at swarming-time, but not in a cellar unless it is very dry." "To have bees contented, so they will work freely, and not attempt to desert, they should be given plenty of room when they are hived."

* * *

Dr. Mason says he has paid big prices for queens from noted queen-breeders, but never bought one that was as good as his own rearing by the dequeening method; but for good queens, easily reared, he prefers Mr. Doolittle's method of artificial cells furnished with royal jelly having a newly hatched larva placed in it.

Mr. Hutchinson is inclined to adhere in the main to the common spelling. He says: "So long as a system is radically wrong, we gain very little by tinkering with minor results." Further down he says, touching the fashions, "Girls' plaid shirt-waists must be laid aside for stripped ones." "Stripped" — how so, Mr. H.?

* * *

Mr. Adrian Getaz, of Knoxville, Tenn., says he has no doubt that really strong colonies, sufficiently packed, could be wintered successfully out of doors, anywhere this side of the Klondike; but he is equally satisfied that small colonies would die out, no matter how protected, if the cold weather is of long duration. He thinks a cellar is necessary for small colonies.

* * *

Dr. Miller very pertinently asks the editor: "As a matter of curiosity would you be willing to explain why Mr. Taylor pays so little attention to the errors in the *Review* compared with that of other bee-journals? Surely an error in the *Review* will do more harm to its readers than one in a paper they never see. And he can find errors in the *Review* if he wants to see them." Good! let's have these errors "stripped" and exposed. Mr. Hutchinson says he has often asked Mr. Taylor to criticise the *Review*. Perhaps too many of us are doing it now. I make my criticisms to Mr. H. by letter.

* * *

I am sure all will be filled with a sense of deep pleasure to learn that Mrs. Hutchinson's physical health is quite good, and that her mind is becoming stronger and clearer. For the last six months she has had charge of the books at the library of the asylum, and has permission to go where she pleases. Mr. H. has put up a pair of type-cases in one corner of the library, and here Mrs. H. sets some three pages of the *Review* every week. He goes to see her every Saturday, and keeps her at home over Sunday, carrying the type back and forth. Her conduct is entirely normal, not even the doctors being able to detect any thing that would indicate mental aberration. Such news is a source of great joy to all of Mr. Hutchinson's friends.

* * *

Mr. R. L. Taylor's department is unusually interesting this month. Some time ago I asked why hives can not be discussed as calmly as the weather. Mr. Taylor says it is because I said the Standard Dictionary is the latest and by far the best of its kind ever printed. I'm ready to be corrected on that point if Mr. Taylor will mention the name; but still the wrangle and ill temper about hives began long before I mentioned dictionaries, and hence I fail to see the force of his reasoning. He laments the great amount of space occupied in Gleanings by Dr. Miller on grammar. If am not wrong, it was Mr. Taylor himself who pulled the leg from under the table when the crockery came down on his own head and the hot tea down his back. Does Mr. Taylor still object to the word "boil," meaning the act of boiling? Still, there is danger, as Mr. Taylor suggests, that bee-journals may be open to the criticism that the boarder had against the butter: "If, madam, there were a little less grease in it, it would be very good salt." Likewise we should not print grammars with a little apiculture in them. I'm about through "dabbling" in it, Mr. Taylor. But you musn't say, "Some time since Gleanings eschewed grammar." Why is the wrong word *since* instead of *ago* used in such cases? There, I'm dabbling again.

AMERICAN BEE JOURNAL.

The following is clipped from the *Chicagoan* of May 27: "A rare treat was given to the eighth-grade pupils of the McPherson school last Thursday, when Mr. G. W. York, editor of the *American Bee Journal*, gave them an illustrated lecture on bees. The pupils were delighted, and the way Mr. York described the simple animal was truly wonderful." Mr. York says his reason for copying the item was to suggest that bee-keepers in other cities will find the schoolchildren greatly interested in a talk on bees if given a chance. He had a Langstroth frame of bees in a glass hive, and gave therefrom a practical illustration of the work of bees in the hive. That is a grand idea, and ought to be carried out wherever possible. Mr. York deserves the thanks of all for taking the initiative step. The children were to take notes and print them in their little school-paper. "A chiel's amang ye, takin' notes; an', faith, he'll prent it."

THE BEST HIVE FOR EXTRACTING.

Location an Important Factor; the Dadant-Quinby Hive for One Locality, the Langstroth for Another.

BY J. M. HAMBAUGH.

As a preface to this article I will say that my conclusions herein enumerated are based on an experience of nearly 20 years in honey production; and while I am taking a standpoint for Southern California, in most instances they will be equally applicable to the Eastern States.

In order to achieve the best results in honey production, all points considered, both financially and in satisfaction to yourself and customers, I would advise running largely to extracting; and in order to reach the maximum results with a minimum amount of labor I'd look at the situation about thus:

1. *Location.*—You must know that the location is a desirable one, and be assured that the end will justify the means.

2. When you are satisfied on this point, the second consideration will be—*a suitable hive.* It must be composed of as few parts as possible to meet all requirements of cheapness and utility, and it must have the features of expansion and contraction to meet the needs of the smallest or the largest colonies at the option of the apiarist. There are times when a colony of bees snugly tucked up in small apartments on three or four combs can utilize their heat, and fare much better than they would in more roomy apartments; hence the necessity of the contracting feature; and, likewise, when the season advances, and the queen reaches her maximum of fertility, laying 3000 eggs daily, the expansion feature becomes an absolute necessity, and room must be given the queen to lay, and workers to store honey in proportion to their strength numerically, if the swarming fever is to be averted, and the best results obtained in honey production, when ample room is thus provided it seems that the energy of the bees is turned to honey, and the swarming-fever averted largely, and very often entirely, for the season. It is almost the universal rule that the non-swarming colonies are the largest honey-producers, hence the need of expansion to the requirements of the strongest colonies.

The practical hive must also be easily utilized when increase is wanted by division.

Now we come to the consideration of the proper size of frame. When I was a honey-producer in Illinois I made some experiments along this line which did not work out to my entire satisfaction. When the crusade was started against the old primitive style of bee-keeping I was imbued with the idea of adopting the standard Langstroth frame for comb-honey production; and the consequence was, I soon found myself in possession of an apiary equipped with the (then) modern modes of honey production in one and two pound sections. A visit to the Dadants in the first years of the '80's resulted in my trying their large Dadant-Quinby hives, and a change of modes from comb to extracting—a change that I have never regretted; neither did I regret the visit, notwithstanding it installed two different-sized frames in my bee-yards, the importance of which I realized later on. In course of time my bees were all equipped for the production of extracted honey, and the equipments for comb honey were stored away in the attic of my shop. Time and experience pointed out very plainly that, if I could adopt one size of frame for all the yards, it would save many vexatious experiences where the bees are away from home and main storage places. I was already using the same frame for surplus as brood on the Simplicity; but the wintering problem was a feature not to be ignored; and as the large Dadants invariably wintered with less loss, breeding up faster and more satisfactorily in the spring, I could not think of discarding them for the sake of the one-frame feature. I determined to try the same size of body and frames for surplus on the Dadant hive, and my experience was quite satisfactory during a heavy honey-flow, but entirely too roomy when the flow relaxed and the colony became less populous. I found them quite unwieldy, and too heavy for the average man to handle, when a case of 11 of these large combs filled with honey had to be carried into the extracting-room. There was also more breakage of combs during the handling in and out of the extractor, hence I abandoned this feature. I am not sure, but it has always seemed to me that the Dadant surplus-case is a little too small; but, to return.

In starting anew here in California, with no wintering problem to solve, in the adoption of a frame that meets the requirements both of the bees and of the apiarist, I have adopted the regular standard Langstroth, and a hive to accommodate ten, and my reasons are :

1. Its convenience in handling, and being nearest universal.
2. Its size is as large as we dare to combine the feature of surplus and brood.
3. Its best adaptation to combs when transferring.
4. A case of ten combs filled with honey is sufficient for the average man to lift, which is quite an item during the extracting season.

Let us now consider the hive in all its practical features as regards the best results from the queen, as well as the convenience of the apiarist. In order to reap the best results from a good fertile queen she must at all times have laying room with as few impediments in the way of horizontal bars and bee-spaces as possible ; and in many instances I have found that her majesty will go upstairs to ply her vocation, and I do not believe in fencing her below, especially in this country, where the harvest usually lasts several months. We should have uninterrupted passageways for the working force from the brood-chamber to the surplus-apartments. All bodies of hives and frames should be made interchangeable, as brood-chambers or surplus-apartments. And now let me say, to obviate future trouble, this class of work should be cut by machinery, as the most painstaking carpenter can not cut to the line as accurately as machinery prepared for the work. All lids and platforms should likewise be of a uniform pattern, and made interchangeable. All brood-frames should be wired with three strands of No. 30 tinned wire, horizontally divided nearly or quite evenly, and full sheets of foundation used where drawn combs are not to be had.

Escondido, Cal., May 31.

[J. M. Hambaugh has been for many years a neighbor of the Dadants—that is, he has lived in their vicinity. He has used the large Dadant Quinby hive, and in the past has been a warm advocate of it, and would doubtless be such still at his old home. But now that he is in a new locality, new conditions have arisen, and it is a little bit of surprise that he has adopted the standard Langstroth ten-frame hive. Usually, when one has become accustomed to a certain system and to a certain hive and to a certain frame, it takes more than the mere matter of locality to change his preference. Facts show this. But Mr. Hambaugh shows his candor by adopting and speaking in favor of the Langstroth hive in the State of his adoption.

If here is just one case of a bee-keeper who has used a big hive largely, and now discards it, does it not behoove us to study over very carefully our locality to determine whether a large frame or one of moderate size like the Langstroth is the best, all things considered? In the A B C of Bee Culture, under "Hives," I very strongly urged the majority to stick to the Langstroth dimensions; notwithstanding, I have set forth as fairly as I could all the points in favor of other hives like the Danzenbaker, the Heddon, and the Dadant-Quinby. —ED.]

* * *

QUEEN-EXCLUDERS.

Indispensable for Extracting, but not Necessary for Comb Honey.

BY C. A. HATCH.

There seems to be a disposition in some quarters to underrate the value of excluders, or even declare them worthless as an adjunct to the hive for extracting purposes. For comb-honey production we are willing to admit all the objectors have to say against them ; but for extracted honey the case becomes quite different, and there is no part of the complement of tools and appliances we think of more value in its special province than good queen-excluders.

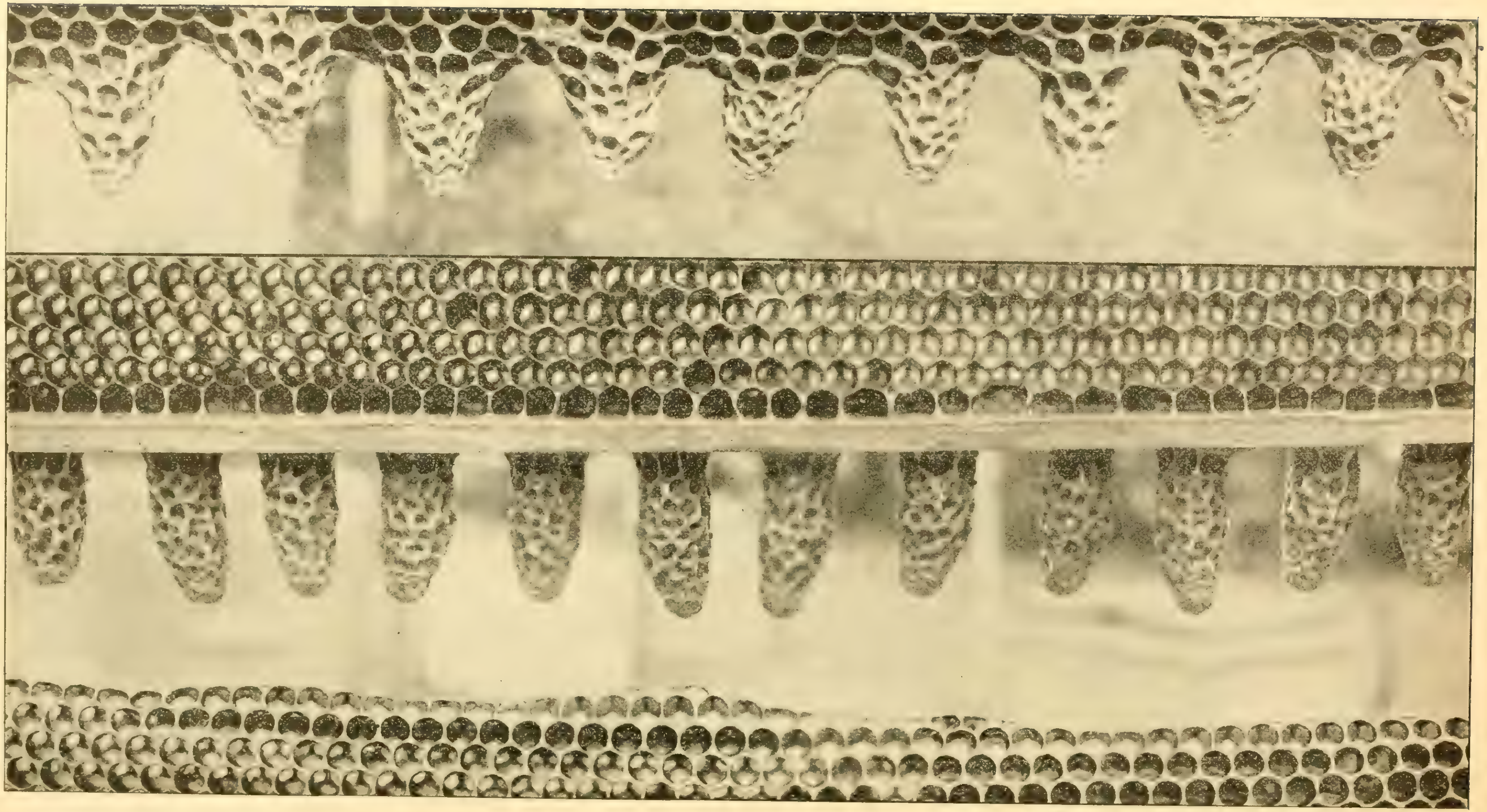
TO EXCLUDE THE QUEEN.

This is, of course, the first function of its use, and the results of this are, first, the whole set of combs in the supers are reserved for honey storage only, thereby adding at least 30 per cent to their capacity, and therefore to their value. In other words, 100 supers of comb, used with excluders, are as good as 130 would be if used without excluders. The extra 30 thus gained, are, at a moderate estimate, worth $30.00; cost of excluders, say, $20 00; difference $10.00 in one year on combs.

Second, be ever so careful in extracting from combs where the queen has access to them, and more or less brood will be thrown out, and with it some larval food, which is not advantageous to the flavor of the honey, to say nothing of the young larvæ floating around in it. Quality is every thing in honey, and flavor is a prime factor in quality; so let us look carefully to all points by which this is effected.

Third. Many more combs must be handled where no excluders are used, to get a given amount of honey, from the fact that much of the storage room in the combs is occupied with brood and pollen. To lessen cost of production is to diminish cost, and thereby increase profits. All labor saved is money earned; so, remember this item.

Labor saved in the fall is another item in favor of excluders. The brood being all below, the honey for winter is stored there, and so no feeding is needed; and, there being no brood in supers, they are removed with half the labor required for those having no excluders; also labor during extracting is economized. Before using excluders, when extracting, much of my time was spent in lifting off supers and putting brood and queen below, all of which had to be done over again, may be, the very next time of extracting. Now, unless for swarming or to correct something wrong in the brood-nest, the super and excluder are never touched until removed in the fall, after the honey harvest is over. See the advantage you have added to your comb capaci-



Fair samples of Doolittle queen-cells—life size—as they are now being raised at Medina in our own apiary. Both sets were raised in an ordinary lower story, having a normal laying queen. The upper set was raised during cool chilly weather in April, on the bottom edge of the comb. See editorials.

ty, also to your labor capacity, and will not that pay?

The objectors may claim that bees will not work as readily through them as without. I have used as many as three piled together, and could not see any difference. I have used them on part of an apiary only, and could see no material difference. I have used from 50 to over 500 in one season; have used them in California, Arizona, and Wisconsin, so please do not apply that worn-out chestnut, "location makes the difference," for it does not. The only difference I could ever discover in the yield between those having zincs on and not, being that, toward the close of the summer, when the weather became cooler, those having excluders on were inclined to store more honey in the brood-nest than those having freer communication. Perhaps in some situations where all the honey came in the fall, like buckwheat, for example, this might be a serious objection, but I think not.

HOW TO USE THEM.

As with most good things, there is a right and a wrong way to use them. They should never be put on at the time of first putting on the super; but let the bees get well started in the combs, and even let the queen lay upstairs if she wants to; and if you have eight-frame hives she will usually want to; but after the bees are well begun in the supers, put queen and brood all below, and a queen-excluder between; or if there is not room below for all the brood, put sealed brood *only* above.

KIND TO USE.

After using wood and zinc in alternate strips, and a thick rim to give bee-space, zinc bound with wood having bee-space, and simply plain zinc strips, I am decidedly in favor of plain zinc sheets; but whether this sheet should be cut so as to go inside the hive and rest directly on the frames, or cut larger so as to rest on the hive, I am not so sure. I have used both kinds with good results, and each has its advantages. As to bee-spaces, let them regulate themselves. If the zinc warps in taking off, it will soon straighten out on the hive, and be all right.

Rambler may have his wood-zinc-bee-space excluders if he likes; they may do to run a bee-ranch on the bachelor plan; but for one who wants to live up to his convictions on the plan that "it is not good for man to dwell alone," the Wilkin plan of plain zincs is best.

Richland Center, Wis., April 6.

* * *

APIS DORSATA.

A Note of Warning.

BY J. M. CUTTS.

It now seems there is but little prospect of *Apis dorsata* being imported to this country. I for one do not want them. I find bee-keeping with modern hives and Italian bees a profitable business, and am satisfied without dorsata. For the benefit of any who may want them imported I should like to call attention to some experiments that have been made with other things.

When left to herself, Nature takes good care of her own. Out of her infinite resources she gives each form of animal and vegetable life its appropriate place and rank. The importation of foreign species is contrary to Nature's intention, and often results disastrously. The English sparrow thrives at the expense of our other birds. When this sparrow was first imported into Boston it was for the purpose of destroying the mealy caterpillars that were injuring the trees on the Common. The fact soon came out, however, that he decidedly preferred grain to caterpillars. The English seem to think it strange that we ever imported such a nuisance.

The imported elm-leaf beetle is working havoc throughout the Middle and Eastern States, threatening the existence of the hardy and graceful trees which, until then, had no dangerous foe.

The gypsy moth was imported some years ago by an entomologist residing near Boston. Several of the captives escaped from custody, and the State has spent $450,000 in the last four years in an attempt to exterminate their descendants. It is now estimated that at least $1,575,000 will be required, and that the appropriation for five years to come should be $200,000 per annum. On the other hand, a perpetual appropriation of $100,000 a year would serve to confine the moths to the district in which they are found.

In Florida several rivers have recently become choked by the rapid growth of water hyacinths imported a few years ago, and considerable expenditure will be required to keep the streams open for navigation. Truly these are costly experiments.

Let us not make any such mistakes. We are doing well enough; and the man who can not make a living and some money in the bee business is either in the wrong business or in the wrong country.

But if dorsata is carefully tested in its native country I hardly think it will be brought here.

Chambers, Ala., Feb. 13.

[I can not bring myself to believe that these bees would bring any train of evils into this country. The English sparrow was a pest in England. It was a pest before it was brought here; and that is true of some of the other things that Mr. Cutts refers to. But *Apis dorsata* is not a pest in India and the Philippines, if I have a right understanding of the matter. Indeed, it is difficult to propagate the race. The number of colonies found in India is few in comparison with the bees of other races; and unless our climate should offer them exceptional advantages, which hardly seems probable, I can not see how they could *possibly* run out other bees. They do not do it in India, and why should they here? It may be somewhat distressing to our correspondent to know that a shipment of *Apis dorsata* is probably on the way. We received notice from the transportation company that there was a package from Bombay, India, on the way for us, and we can not imagine what it is unless it is one or more queens of the giant race. One thing is certain : If we get them here alive they will be clipped ; and if the bees get away they will not have the means of reproducing their kind. If they do not know enough to come back to their queen they will have to go—that is, providing we can not catch them.—Ed.]

* * *

GENUS APIS.

The Various Bees of the World Compared.

BY F. W. L. SLADEN.

It seems strange that the subject of the near relatives of our domestic honey-bee — their number, distribution, habits, and the points in which they differ from our bees, should be so little known as it is at the present day, and should claim so small a share of interest among bee-keepers generally, especially as it ought to throw an important and independent side-light on the whole question of bee-keeping. No one will surely deny that an advantage would be gained by the introduction of a superior breed of bees into our hives, if one should ever be discovered, and who is to say there is no superior race while the field remains to-day only partially explored? The habits and instincts of the sister-species of our domestic honey-bee should give us some idea of its parentage, and of the successive phases through which it has passed to make it the wonderfully interesting and useful insect we find it to-day. Any information that can be collected should prove of great service in making attempts at improving the races of honey-bees now generally cultivated in America and Europe. For this reason this subject is, to my mind, one of great importance and interest to every bee-keeper.

A NATIVE NEPAULESE BEE-KEEPER OF THE EASTERN HIMALAYAS WITH A FRAME OF HIMALAYAN BEES. PHOTOGRAPHED BY F. W. L. SLADEN.

The genus *Apis*, to which our honey-bee belongs, is now known to contain at least two different and quite distinct species, besides *Apis mellifica*, our common domestic honey-bee. These are *Apis dorsata*, Fab., and *Apis florea*, Fab. These two species are closely allied to one another, and together they constitute a section of the genus *Apis* which is quite separate from *A. mellifica*. They resemble *A. mellifica* by living in colonies which consist of one queen, or perfect female ; many drones, or males ; and very many workers, or sterile females, and they build a perpendicular comb of wax consisting of hexagonal cells formed on either side of a central mid-rib. Many details in their domestic economy are probably very much the same as those of *A. mellifica.*

But these two species differ from any known variety of *A. mellifica* in that the nest consists of a single slab of comb only, which is built out in the open air from the horizontal branch of a tree or bush.

The geographical distribution of each of these species is about the same. It extends over the Indian Peninsular and the East Indian Archipelago. In any part of this area where the climatic and other conditions suit them, both these species are common, frequently abundant, so there is no fear at present of their becoming extinct.

An essential condition in the climate is tropical heat; and even in their native country these bees can not stand the cooler temperature of only slight elevations, though these elevations are often more generally favorable to bee-life on account of the more varied and abundant flora they produce.

APIS DORSATA, FAB.

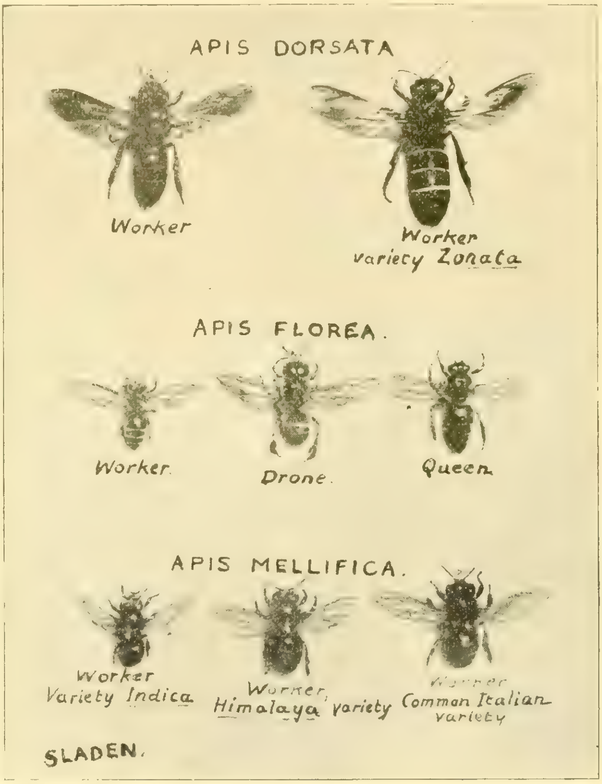
Apis dorsata may be distinguished roughly from *A. florea* by its much larger size and by its smoky wings. It builds a comb 3 to 6 feet long, 1 to 2 feet deep, and 2 to 3 inches thick, from the horizontal branches of forest-trees in the Indian jungles, sometimes from projecting ledges in rocks on the banks of rivers, etc. The colonies are generally gregarious. There are several varieties — some entirely black, others more or less yellow. The typical form has the base of the abdomen yellow. *Apis dorsata* is the largest honey-bee known. It is lazy and bad-tempered. It gathers very little honey, but secretes a great deal of wax for its comb, and this is collected and sold by the natives. This honey-bee has not been domesticated.

APIS FLOREA, FAB.

Apis florea is the smallest honey-bee known. The comb is 4 to 6 inches long and 3 or 4 inches deep, and is generally built in low bushes. The wax is nearly black, and of no value. This is a very beautiful little bee; the pale bands on the abdomen are of a richer orange color than in the Italian bee, and the narrow belts of white felt at the base of each segment are unbroken and conspicuous. This bee can not sting one's hand except on the back where the skin is thin. It has not been kept in hives. A quite black variety is common in the valleys of the Himalayas. The drone of this species has an extraordinary appendage to the metatarsi of the posterior legs. When first discovered it was named *Apis lobata*, by F. Smith, on account of this appendage, and it was not until some years later that its relation to the workers of *A. florea* was established. I found the drone, here shown, in a queenless colony, in January, before the new drones had hatched out. Notice how large the queen is, compared to the worker.

APIS MELLIFICA, LINN.

Our domestic *Apis mellifica* runs into a great many varieties or races (not true species) in different localities of the Old World. Italians, Carniolans, Cyprians, Tunisians, are the names of some of these. In India varieties are found that are quite different from those here named. One of these is called *Apis Indica*. This is much smaller than any of the European varieties mentioned above. Its commonest form is much yellower than the yellowest Italians, the hinder part of the thorax and almost the whole of the abdomen being pale yellow. The queens are said to be exceedingly prolific.



SPECIMENS OF DIFFERENT BEES (LIFE SIZE). PHOTOGRAPHED BY F. W. L. SLADEN.

At Darjeeling, in the Eastern Himalayas, they have a variety of *Apis mellifica* rather like our western bees. When I was in India, two years ago, I visited an apiary of these bees, consisting of about 60 hives kept at the jail, Darjeeling. I had the privilege of making the acquaintance of the native Nepaulese apiarist, with whom I opened one of the hives. No smoke was used in operating on these bees. After the operation was over the bees became very troublesome around my head, not stinging, but buzzing and crawling about one's face and neck in a very unpleasant manner, and I had to take off my hat and veil and spend a quarter of an hour whisking them off with a bunch of leaves, in which task I was kindly assisted by my worthy Asiatic friend whose portrait is here given (probably we should not have had this trouble if smoke had been used), with a frame of comb in his hand. The comb is held in the frame by means of four wooden sticks. The body of these bees is quite soft; the ventral segments of the abdomen are almost membranous. These bees build a cell with a diameter $\frac{6}{7}$ that of our bees, and would use our ordinary worker comb for raising drones.

Another variety of *Apis mellifica* found in Ceylon looks like a cross between variety *Indica* and the Himalaya bee.

The actual sizes of these bees in the photo may be estimated by comparing them with the Italian bee shown in the right-hand bottom corner.

Ripple Court, Dover, England, June 5.

[Only incidentally Mr. Sladen mentions the fact that he made a tour through India, looking up these different races or varieties of bees. I have known for some time that he had a technical knowledge of the different bees, but had forgotten to call upon him.

Of *Apis dorsata* he says they are lazy and bad-tempered. Our Mr. Rambo found them quiet and easily handled. Is it possible that there are distinctive differences between these bees of the same kind so far as temper is concerned? Mr. Benton also, I believe, claims that they are quiet-tempered.

I had the photo showing the different varieties enlarged, so the different specimens would show up to be actual life size. This will enable the reader to form a relative comparison between the different bees shown.

In the plate under the heading of *Apis dorsata*, the worker marked "Apis zonata" appears very much larger than the other one also supposed to be marked "worker." The specimens of dorsata that we have in alcohol are pointed at the end of the abdomen the same as Italians, and look more like the dorsata on the left. As to size, those we have are about the length of the zonata shown.—Ed.]

SWEET CLOVER.

A Revelation in Road-making.

BY C. H. DIBBERN.

We all know how desirable it is to have good roads, and how miserably we generally fail in getting them. The colossal ignorance of the average "highwayman" is astonishing; but he seems to plod along, year after year, in the same old way.

Usually, as soon as the roads become dry and reasonably good in early summer, he commences with plow and scraper, and soon has a lot of "soft stuff" in the center, to be ground up into dust or mud as the weather may determine. Perhaps in October he will repeat the operation, with the same result, and will, perhaps, congratulate himself on work well done. Oh, yes! if there is any sweet clover growing in the fence-corners it must be carefully cut down, although the jimsons, ragweeds, and thistles may go to seed. Perhaps he will do a good deal of swearing at the bee-men, who, he imagines, walk around nights sowing the seed for his especial benefit. Likely enough the farmers will do the swearing the rest of the year about the bad roads.

Last July, while driving in a distant township I struck a piece of road that was a pleasant surprise and a revelation to me. Evidently some bee-keeper must be road commissioner, or else he had learned something. Here, as in so many places in Illinois, the sweet clover was growing luxuriantly on both sides of the road. By running a mower up and down the road several times during the summer it had been kept from encroaching on the driveway. Not only that, but the cut clover had been thrown into the middle of the road; and how springy and delightful it all was! There was no dust, and the pleasant perfume of sweet clover filled the air. Some cattle in an adjacent pasture were reaching through the wire fence and feeding on the clover within reach; and the bees were on hand by thousands, carrying away the nectar and filling the air with their contented hum. Soon I passed into another township; and, though the sweet clover had extended for miles further, it had all been cut and burned in the road, leaving a scene of desolation; and, oh how dusty it was!

Again I passed over this road in October. I had been wallowing through the mud, and was weary enough, when I again experienced the pleasant sensation of my sweet-clover road. Instead of mud there was that springy roadbed, without mud or dust. Upon further investigation I found the sweet clover had all been cut when about done blooming, and carefully piled in the road where the sun had soon wilted it, and the wagon-wheels had crushed and mixed it with the soil. Though this road ran through a level mucky country it was the best road there was anywhere. The millions of decaying roots in the ground on either side seemed to provide a sort of natural drainage that seemed to carry off all surplus water. It appeared that no work with plow or grader had been done on it for several years, and only the intelligent care of the clover had done the business.

Now, is it not possible that, aside from bee-keeping, as so often happens, we have been making war on our best friend? Surely the suggestions I have mentioned are worth investigating. Sweet clover has come to stay; and, whether we are bee-keepers or not, had we not better turn it to some account?

Milan, Ill.

[Well, well, friend Dibbern, you have given us something refreshing in several ways. Since you speak of it, I can readily imagine that sweet clover is just the thing. We have places in our neighborhood where it grows higher than the fences, and clear from the wagon-track clear up to the fences. Then to think of sweet clover being ruled out as a noxious weed! As you say, it seems a little funny to think so many have been making war on their best friend; and recent communications on the subject remind us how many different uses we can find for things that are scattered all about us — even the weeds in the fence-corners if we all set about looking the matter up. I will forward a copy of this to the L. A. W. *Good Roads Bulletin*.—A. I. R.]

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ALSIKE CLOVER FOR BEES AND STOCK.

BY F. A. SNELL.

There is no crop I think that will, in the Northern States, pay the bee-keeper or farmer better to raise than does alsike clover. It blooms profusely, and the blossoms are rich in the secretion of honey — just what the apiarist most desires. The period for the building-up of colonies and their increase in numbers also comes at the time this plant blooms. With frequent rains this bloom will yield honey for six weeks, and a heavy flow for a full month when all conditions are favorable. It is a heavy bloom of honey-yielding plants that gives a big crop of surplus. It matters not if there is a good deal of white clover growing. The farmer bee-keeper should grow this clover so far as he can reasonably do so. More surplus honey will be secured in one month with a heavy bloom than in three or four months with only a fair bloom, other things being equal. I have many times found this proven true as stated above. There is never too good a bloom when we do our best to secure it by generous sowing of seeds producing honey; hence we should sow the alsike, and then with white clover we may have a generous honey harvest from the clovers, which is of finest quality.

As a crop for stock, after an experience of over thirty years I can say that the hay from alsike is much superior to that from any other clover I know of, and, of course, is far ahead of timothy hay. The quality is very high. Stock prefer the alsike for pasture or hay to any thing else in the line of hay. The stalks are fine, and the hay is all eaten—no woody stubs left, as with the coarser clovers. If not wanted for seed it is well to sow a little timothy with it, as it then stands up better. Under favorable conditions, with rich land I have had it grow four feet in length of stalk — usually two to three feet. Its hardiness is a strong feature in its favor. It has with me repeatedly wintered well, when red clover has been killed out almost entirely. I have never known it to winter-kill. It has proven to be entirely reliable.

This clover seeds at the first blooming. It may be cut when just nicely in bloom, and then it will bloom later on in the season, giving nice fall feed for stock and bees.

Alsike will thrive on land quite moist, and give good crops, where the red clovers will not grow. If this clover is cut and cured a little early, or when nicely out in bloom, it is much relished by hogs; and when fed in winter, in addition to other foods, it contributes materially to the health of the animals, which is a matter that receives far too little attention from farmers in general. The farmer who keeps both bees and stock has a double interest in the matter of growing alsike clover—for the honey and for good feed for the stock upon his farm.

I have secured a good stand of this clover by sowing the seed on the grain stubble soon after harvest, when we had seasonable rains that would start its growing. A few acres should be at least tried on every farm. I do not know how far south it will do well; but in Northern Illinois, and north of that, it does well, and is much grown in some sections.

Milledgeville, Ill.

* * *

CUBA.

Some Plain Facts about Havana; Something of Interest to Bee-keepers.

BY THE AMERICAN TRAMP.

I am in a liberal mood to-day; so to those who have an eye on Cuba, I will give advice and what I see here free of all charges. This is more than others will do. Here in Cuba the rule is, charge everybody for any thing and every thing possible. I've been living in Havana the last six weeks, so will tell you of some of the differences between a Cuban city and a northern one. In the first place, I would advise all those who intend coming here to practice rigorously tight-rope walking for a few months in order to be able to keep on the sidewalks of a Cuban city. On the Broadway of Havana (Obispo St.) the sidewalks run from ten to thirty inches in width. At certain intervals some benighted Spaniard of the 14th century has a small awning stuck out from his shop window, just high enough to catch one in the neck while balancing along on the curbstone. The only way to get along with the sidewalks here is to walk in the gutter.

The outside appearance of the houses here is very poor, while the inside forms quite a contrast, being gotten up quite gaudily with colored glass, fancy tiling, marble, etc. The houses being built of mortar, stone, and cement, with very thick walls and high ceilings, it makes it very cool and comfortable inside. The outside doors are all built thick and solid, while the windows, in place of glass, have iron bars with solid inside blinds. To a stranger the houses, with their iron gratings, appear like so many prisons; and the people looking out of them are like so many prisoners. Then, again, the houses here are not located, as with us up north, a certain class to each neighborhood. Here you look into one house. There lives a rich Spaniard. Every thing inside indicates wealth and luxury. The next house may be a cow-stable, with a dozen or more cows in it; the next a tin-shop; the next a house full of niggers, and so on all along the street. No house, from the outside, indicates what's inside.

There are several nice parks in Havana where one can enjoy the music from the different bands several nights in the week, and there is one nice walk here, the Prado. Here one can see the beauty and wealth of Havana driving about or promenading. The boasted Spanish or Havanese beauties are scarce. The ladies here all have beautiful eyes and hair, and this is all. You can see more beautiful women in any large northern city in one hour than you could see here in a week—that is, to the taste of the writer. Of course, tastes differ. They also have a custom of powdering so thick that they all look as if their heads just came out of a flour-barrel; then they put the perfume on so thick that you can smell them coming long before you can see them. But I'll stop now or I may get myself into trouble. There is hardly any of what we would call children here. They are either babies or grown. Up to five or six years they are babies; from ten years up the boys are mashers, and the girls are dressed and powdered up, and trotted about by their parents just as their elder sisters are. This is one of the queer customs they have. They never let a girl go out or sit alone with a man. A girl's beau has to court her with her father or mother sitting facing him. I hope this is because it is an old custom rather than from a distrust of man or woman.

The most of the laboring class are nearly all unmarried men, and they use up in a restaurant what they can earn. They seem to ragard marriage as a luxury out of their reach; and with the habits of both men and women here I think it is. There is not a single savings bank in Havana. Some years ago one was started, but it proved a flat failure. The natives will spend their last cent in hack fares before they will walk ten blocks. I saw a laborer, who was working in the sewers here for 83 cents a day, hire a hack to ride eight blocks to have a pickax exchanged. This was spending 20 cents in riding while earning four cents for the same length of time.

I will not say any thing about bee-keeping, as you have a more able writer here writing you an article.

Havana, Cuba, May 15, 1899.

* * *

A CASE OF BEE-FEVER.

BY E. W. BROWN.

A few years ago I was taken with an acute attack of bee-fever. I was totally unable to cure myself. Even hypodermic injections had no permanent effect; and, being too bashful and miserly to consult a physician, I gradually grew worse until my case became chronic. By exercising my best judgment I kept my fever from assuming a malignant form, although some of my friends thought I would eventually have to be sent to an asylum for the insane. I may wind up there yet, but somehow nobody seems to worry about it any more.

You can, perhaps, imagine how "powerful bad off" I was when I say that I gave up a good job as inspector for the Chicago Telephone Co.; mortgaged my suburban home for $400; packed my eight colonies of bees and household goods into a car, and moved 500 miles with a family of wife and three children, in spite of the fact that there were hundreds of acres of sweet clover growing in the vicinity of my home, and a crop failure was unknown. My wife and I were born in the East; and after seven years' absence we longed to go back. This is one of the reasons why we took the leap in the dark.

Before leaving Chicago I read an Indiana bee-keeper's advertisement in a bee-paper, offering for sale colonies of Italian bees on wired frames at $4.00. I ordered 14 colonies to be sent here (New York). I thought they would be sent by freight; but when I had to pay $27.50 express charges I became aware of the fact that small lots of bees are sent only by express. For $60.00 I could have had a whole carload of bees sent by freight, and received free railroad fare for one person. However, I was prepared, for the shipper wrote me in advance, telling just what train the bees would arrive on. I happened to know something about express rates, so I made a guess on the weight of the bees, and estimated that the charges would be about $28.00 before I went to the station after them. When I arrived I found the express agent in a nervous state of mind. There was a big pile of ten-frame hives with covers removed and wire cloth nailed over the tops. The 14 covers were crated by themselves. Every thing was in good order, and packed well enough for a journey to California. When I told the agent I had come for the bees he said, with an anxious look, "The express charges are $27.50."

"Is that all? I thought it would be more," I answered.

I was pleased to learn that the charges were no higher than I expected, and he could see that I did not feel bad. When I drove away he stood staring at me. Perhaps he was thinking of Josh Billings when he said people were of two classes—"phools and damphools."

I was well pleased with the bees. All the combs were built on wired foundation in what I should call closed-end Hoffman frames. They would interchange nicely with ordinary Hoffman frames.

That season proved to be so rainy that the larger part of the nectar went to waste; but I obtained 66 lbs. per colony — a total of about 1450 lbs. This includes fall honey — mostly comb.

When it came time to pack the bees for winter I found that the closed-end frames were the only ones that contained brood in every case where I had put both kinds of frames in one hive, with two or more closed-end frames together. If there were two or three closed-end frames on the north side of the brood-chamber, there is where I would surely find the queen and brood, while the other part of the brood-chamber, filled with open-end or Hoffman frames, would be filled with honey.

This impressed me greatly; so I sent in a rush order to my supply-dealer for 80 boards, 14×8½ inches, and $\frac{3}{16}$ inch thick. By using a strong leather strap I turned my ten-frame hives upside down; removed the bottom, and inserted one of these thin boards between the end-bars and the end of the hive at each end. Before putting these boards in I folded three layers of burlap over them in such a way that it would be impossible for the bees to glue them in fast. In removing one of these boards the burlap or other cloth would peel off the end-bars as easily as pulling a quilt off top-bars. So you see I went into winter quarters with my 41 colonies on closed-end combs. One colony was allowed to go into winter confinement queenless. It wintered well, and was strong enough in bees in March, when it allowed itself to be robbed, joined the bandits, and went home with them loaded with their own honey. The 40 other colonies wintered nicely on the summer stands, with cork-dust cushions in the supers.

As I did not make money enough the first year to pay my rent and support my family I went to Buffalo to get work for the winter. The only work I was able to get was that of a street-car conductor. Every thing went along smoothly till spring was approaching. When I took the job I made up my mind that I should have to banish bees from my thoughts for a few months or I should get into trouble; and I actually did succeed in keeping my fever under control for three or four months, and then I began to figure on bee-supplies for the coming season, and then it was that every thing on my car began to go wrong. I cut up all sorts of capers. Sometimes I would pull the wrong rope when I wanted to ring the bell. Instead of ringing the bell to go ahead I would pull the trolley down off the wire, absent-mindedly; and one day I punched a transfer for a passenger, gave him my punch, and put the transfer into my pocket. These things were bad enough; but one day I received a letter from home, saying that the bees were so strong in numbers, and there were so many apple-trees in blossom, that the bees were liable to swarm any day. This was too much. After that I did not know whether I was conductor or passenger. A passenger boarded my car, and I forgot to collect his fare. To pay for this I had to work three days without pay. Well, I soon gave the job up, and returned home just in time to get my supers ready for the white-clover flow.

Eden, N. Y., March 31.

To be continued.

* * *

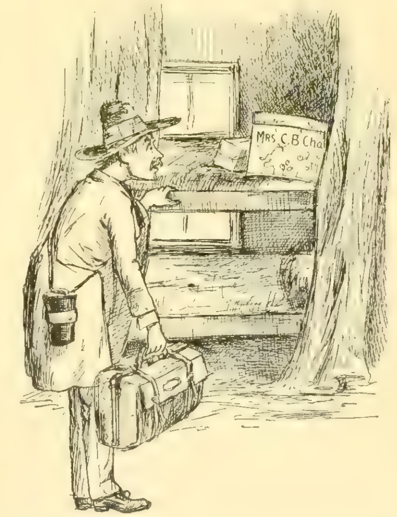
RAMBLE 170.

BY RAMBLER.

While in Seattle I came near having the Klondike fever. Miners were coming in from that new mining country, and it was not unusual to meet them upon the street in their picturesque garb of furs. Tales of fabulous wealth were rife (tales, by the way, never applied to bee-keepers); then there were stories of hardship and death. Of the latter the half has never been told. In the mad scramble for gold the dead are soon forgotten, and the rich strikes are the only features that are published abroad.

To a person who has been basking in the sunshine of Southern California for several years those furry garments suggested a temperature for which I was little fitted, and I concluded to purchase a ticket for San Francisco and defer my visit until a more auspicious season. I expected, of course, to have a cabin mate upon the trip, and wondered with what kind of a genus *homo* my lot would be cast. I went aboard the steamer early in the morning, and one of the polite attendants showed me my state room. My *companion de voyage* had evidently been there before me, and deposited a large bandbox. I dropped my grip, and proceeded to examine this suspicious-looking box; for who ever heard of a man carrying a bandbox? and, sure enough, there plainly written upon the top were these words, "Mrs. C. B. Chapman, state room 118."

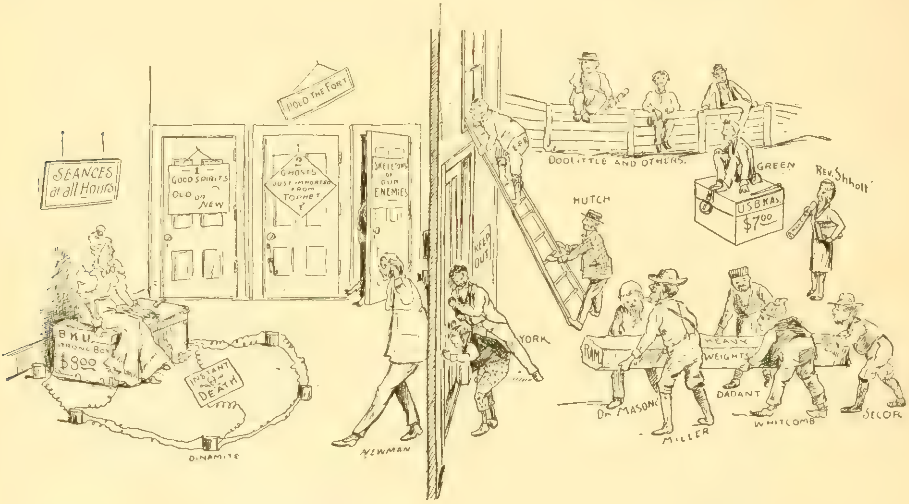
You can but faintly imagine how embarrassed I felt in the presence of the very name of that married woman. The cold chills chased each other up and down my spinal column. I critically examined the box again, and there was no denying the fact that my room mate was a "Mrs.;" and, sitting down, I pondered the subject, wondering what I had done to merit such a fate as this; and here I was alone in a far country, with no friend to hold out a protecting hand. I felt so nervous that I stepped out of the state room, and, leaning upon the railing, looked down into the green waters of the harbor. All was peace below the surface. It was a wicked thought, but I was almost persuaded to cast that miserable bandbox overboard; but wishing to do no injustice to any person I calmed down several



degrees. I am inclined to cross bridges before I get to them, and to imagine all sorts of evils. I finally walked boldly to the purser's cabin and presented the case to him, and he proved to be both a gentleman and a friend, and promptly gave the lady another room. But I felt all the same that I had escaped a great embarrassment.

From eight o'clock until two that day our steamer cleft the waters of Puget Sound. Our journey was still to the north; and the day being bright we had a fair view of this vast body of water, which, with its many indentations and islands, is more worthy to be called an inland sea. We touched at a few ports, and finally tied up to the wharf at Victoria, British Columbia. We had several hours here, and nearly all of the passengers improved the opportunity to see the town. The chief noticeable features were the fine government buildings and the numerous Chinamen. I should think fully a third of the 25,000 population of the town were of that race.

At Victoria I met my cabin mate, and he was a young man just from the Klondike country. He was returning much poorer than when he went north, and he felt quite elated to think that he had gotten back with the breath of life in his body.



After our good ship had passed out upon the broad ocean that night, the storm again commenced; and for two days our ship was pelted with rain, and buffeted with the winds and waves; and, though three-quarters of the passengers were seasick, I escaped the disagreeable experience.

You would scarcely think there would be any thing to interest bee-keepers off the coast of Oregon, but there is. I saw some time ago an account of a wax-mine off this coast; and while in Oregon I made inquiries in relation thereto, and found it to be a fact. Parties who found the wax out a little distance from the shore supposed they had struck a vein of some kind of mineral wax that closely resembled beeswax. They fished up several hundred pounds, and it readily sold for beeswax, and it certainly was beeswax, and the mine was soon exhausted. No one knows how the wax was deposited there, but it is supposed that a vessel with a large amount of wax on board was wrecked there. A beeswax mine would indeed be a bonanza to the finder.

After arrival in San Francisco I found my way across the bay to Oakland, and paid my compliments to Mr. W. A. Pryal, and found him up to his ears in real-estate and insurance business; but still he finds a little time for recreation in his apiary of about 40 colonies, in which he is still interested. I think it is a fact that no one who has ever managed bees, and having a love for the bees aside from the dollars-and-cents point, ever wholly gives up the pursuit. Mr. Pryal a few years ago turned his attention to queen-rearing, and has an idea of working his bees in that direction again. We have no queen-breeders in California, and the State should boast of at least one.

Mr. Pryal and I visited San Francisco, and we proceeded to hunt up Harry Jones, the gas-man; but we found that our genial friend had at last, after several years' vowing and threatening, left the hard pavements and the brick avenues, the rattle and tear of the city, and had become a *bona-fide* bee-rancher near Santa Rosa. As it was only a little matter of about sixty miles, Mr. Pryal and I thought we would take a little turn out there and see him; but the morning we appointed to make the start came in with a gentle rain, and the journey was postponed indefinitely. Our friend will probably appreciate the miss we made.

I felt as though it would not do to pass through the city without shaking the hand of that staunch friend of the bee-keeping fraternity, Mr. Thos. G. Newman, and Mr. Pryal chaperoned me a long walk up Market Street, to his place of business.

Mr. Newman gave us a cordial greeting, but we were pained to find him in delicate health. When Mr. Newman first came to

California he found an abiding-place in the extreme south, at San Diego. We were in hopes for a time that Los Angeles would become his permanent home, and there is not the least doubt in my mind but this city would have been the more healthful for him; but business matters necessitated the change to his present quarters.

Mr. Newman is an eminent spiritualist, publishes the *Philosophical Journal*, and but a few moments' conversation with him will demonstrate that he is a man who desires to benefit and elevate his fellow-men. He has been a faithful worker in the interests of bee-keepers, and there is no use to refer to the firmness of his backbone in reference to the affairs of the B. K. Union, and especially when considering the marriage of the Union with the newer association.

There are several points that are not taken into account when considering this nuptial affair. The members of the Union never gather in an annual meeting, like the U. S. B. K. Association. If it did hold annual meetings, and both associations would meet at the same time and place, there is no doubt the wedding-feast could be amicably spread.

As the case now stands, Mr. Newman is the only visible head to the Union, and he gets all the blame for standing so strenuously against the wiles of the new association; but there is a power behind Mr. Newman in the membership of the Union. He has his ear to the telephone, and the majority are shouting to him to keep the door shut, and he is faithfully obeying orders. From Mr. Newman's standpoint I sum the situation up in the attached cartoon.

ANSWERS TO SEASONABLE QUESTIONS BY G. M. DOOLITTLE

FEW UNFINISHED SECTIONS IN THE FALL.

Question.—Do you not think that we are liable to overdo the thing of tiering up sections so as to secure a large yield of honey, this causing too many unfinished combs in the fall? I have followed the advice given in our bee-papers, of giving room every time the bees seemed somewhat crowded, and the result has been that I have many unfinished sections in the fall—many more than it seems an advantage to have.

Answer.—How to manage our bees so as to secure the greatest yield of comb honey is a question of great importance to all those who are engaged in producing such honey for market; hence we have many articles on this topic, giving us instructions regarding how we should proceed. But comb honey is of little value unless pretty nearly or fully sealed over, so that "how to manage our bees so as to have few uncapped sections in the fall" is a question of nearly as much importance to us as the first. For years I was troubled by having from one-fourth to one-third of the combs in the sections not fully sealed at the close of the honey harvest, which were salable only at a reduced price; but of late I do not have nearly so many as formerly. After experimenting for some years in this matter I became convinced that the cause of the trouble was in giving the bees too many sections; and especially conducive to this was the plan of tiering up sections late in the season. Many and many a time, years ago, I spoiled a promise of an abundant yield of comb honey by tiering up four or five days before the honey harvest closed. To tier up sections profitably requires considerable tact, and especially do we want a thorough knowledge of the honey resources of the field we occupy.

I think there has been too much injudicious talk during the past regarding not allowing the bees under any circumstances to cluster on the outside of the hive, the idea being generally conveyed that, when bees thus cluster out, they need more room. Now, it depends on when this clustering-out occurs, whether more room is needed or not; and hence I say "injudicious talk." If the clustering-out occurs at the commencement or in the height of the honey-harvest, then more room should be given; while if at the latter part of the honey harvest, or in a time of honey dearth, no more is needed, for more room at this time results in the one case in many unfinished sections, and in the other in an absolute waste of time used in enlarging the hive. To illustrate:

During some seasons we have but very few days of honey secretion, and that often after the flowers which produce the nectar are rather past their prime. At such times we often do not have on the hive more than one-half the capacity which we would use in a good season; and for this reason the bees begin to be crowded out. Hoping that the weather may be good during the rest of the time that the flowers are in bloom, we double the room for our colonies, only to have it turn bad weather again, thus giving us only partially filled sections in the fall; while had we left them as they were, and not been stampeded at the sight of a few bees hanging out on the front of the hive, all would have been finished.

I well recollect one such season when, in time of basswood bloom, we had bad weather up to the middle of the same. At this time I had on the hives about one-half of the surplus room generally used, when, all at once, the yield of honey became abundant, and the bees began to be crowded out. Hoping that the weather might be good for some time, I doubled the capacity on a few hives. The result was that the bees immediately took possession of the empty sections, while the weather turned unfavorable again; and when the season was over I did not secure half as many finished sections from these hives as I did from those which were allowed to remain as they were.

Again, very often after basswood bloom has failed there comes on very hot weather when not a bit of nectar can be obtained; and the result is that the fronts of the hives are black with bees. According to the advice above alluded to, more room should be given; and if the bees then persist in clustering out, some have gone so far as to tell us to take a smoker and smoke them in, continuing this smoking till they stay in the hive. Any one can see at a glance that this would be of no use, for at such times the bees are doing just as much for the benefit of the apiarist by hanging on the outside of the hive as anywhere. My plan of securing nearly all completed combs of honey in the sections is as follows:

When the bees show, by building little bits of new comb here and there about the hive, that they are ready for the sections, I put on the smallest amount of surplus room that the hive will allow of, and leave it thus till the bees are well at work, when I give about the same amount more; and when this room is fully occupied I give the same amount again, if we have not passed the middle of what is our usual honey-flow. By the time the bees fully occupy the last room given, the first on will be ready to come off; and when this is taken, if more room is needed it is put above the sections the bees are already at work in, so that they may not be forced into these last sections only as they have all those filled below. If the yield continues I keep taking off the filled sections next the hive and putting the empty on top of those the bees are already at work in until the season begins to draw to a close, when, as fast as the full sections are taken out, the others are lowered down till the space is contracted to the original capacity that was first put on. In this way the bees are given all the space they really need, while the chance for many unfinished sections in the fall is quite small.

Such items as these are well worth looking after and studying upon; for he who understands the most about all of these little kinks of practical bee-keeping is the one who will make the greatest success in our chosen pursuit, apiculture.

HEADS OF GRAIN FROM DIFFERENT FIELDS

A BUNCH OF QUESTIONS.

1. If two queens, one of which would lay 1500 and the other 2500 a day, during a good summer honey-flow, be put, after the flow, in eight-frame Langstroth hives full of comb, and containing 25 lbs. of honey each, and enough bees to keep the hives warm, will the 2500-a-day queen lay more eggs during the two following months than the other?

2. About how much honey should a colony of bees in a hive of the above size have between the summer and fall flows if it is 55 days from the close of the one to the opening of the other?

3. All my six queens were reared from eggs laid by the same mother, but were impregnated by drones of another mother. If, next year, I should rear queens from the best one of these, and the young queens should be fertilized by drones reared in my own apiary, and this should be repeated for a number of years, will the queens or the bees reared from them lose any of their valuable qualities?

4. In wintering my bees on summer stands, should the hive be contracted with a dummy to the space they would occupy when the temperature is at 30°, or should they be given more room?

5. Will a honey-plant fail to produce any honey for two years in succession, or is a failure usually followed by a good flow the following year?

6. About how many spaces should an average-sized colony in an eight-frame Langstroth hive occupy wholly on a cool day in autumn?

7. Will bees that hatch two months before a fall flow be able to gather as much honey as if they hatched three weeks before, there being no honey for them to gather before the fall flow? J. C. Carmichael.

Eber, Tenn., May 27.

[1. Shortly after the honey-flow, queens, as a rule, curtail their laying very considerably, and I should not expect that, after that time, there would be a great deal of difference in the number of eggs laid by either queen.

2. From 10 to 15 pounds.

3. I would not recommend such inbreeding. It would be better to renew your stock oftener.

4. Contract the hives down to the space that the cluster will occupy at such times.

5. As a rule, we do not expect to have two poor seasons for any one honey-plant in succession. As a general thing, a good flow from any honey-plant is liable to be followed by a poor one; but there are so many exceptions to either one of these cases that I do not know that we should set down any rules.

6. The colony ought to occupy about two-thirds of the space, but it might take only a half. By "spaces" I suppose you mean the intervening spaces between the brood-frames.

7. Probably not.—Ed.]

BEES WITH DIRTY AND TAINTED FEET.

We notice that there are several ideas regarding the cause of so-called travel-stain on comb honey. Some can't think it possible that bees should be so untidy as to have dirty feet, and then run over the honey. The question was brought to my mind yesterday when I was called upon to help pull a cow out of a quagmire. When I got to the place I found the cow had lain there so long that the flies had done their work, and the animal was almost covered with a mass of squirming wriggling maggots, and the bees were there also by hundreds, helping themselves. I don't know whether they wiped their feet or not before entering their home; but if they did not, would it not stain as well as taint honey to have those bees walking over it? But is the stain on the honey caused by the bees running over it? Is it not possible that it may be something similar to mildew?

Mannville, Fla. M. W. Shepherd.

EDITORIAL BY E. R. ROOT

THERE is something that possibly may interest you on page 491.

THE HONEY SEASON FOR 1899.

So far reports are very meager, and such as have already come in do not indicate any very great show of surplus for most localities. There will be more of a crop than last year, but even then probably below the average. The season seems to be late everywhere, and basswoods are only just beginning to open in many places. So far reports seem to indicate that Colorado will more than hold her own. In California there will be a very light crop—less than a quarter. We have received letters from Wisconsin, Iowa, and Tennessee, indicating no honey; but for Wisconsin, at least, it is a little early to forecast the crop. In New York, reports indicate that there will be a fair crop of clover and basswood, which will, no doubt, be followed by the usual flow from buckwheat. From Michigan we have some bad reports as well as good ones. N. E. Doane, of Breckenridge, Mich., writes that willow-herb has "about had its run," and this is usually one of the unfailing sources of honey. Byron Walker, of Evart, Mich., writes much more encouragingly. The nectar-flow in and about Medina, while better than last year, will be rather light. Mr. Burt will get a super of comb honey from each one of his 300 colonies.

The conditions in the latter part of May and early part of June, while very favorable, have been rather unfavorable during the last two weeks of June. We have had quite hot weather followed by too many cool days and nights, and there is not liable to be a nectar secretion in cool weather; although this morning, June 30, when the temperature was as low as 55 by a tested thermometer, the bees were working lively on the basswoods in front of my house. At this writing, bees are gathering honey from both clover and basswood, and if they only *hang on* we shall have nothing to complain of.

A COLONY BETWEEN THE WALLS OF A DWELLING-HOUSE; HOW TO GET THEM OUT.

THE question is often raised, how to get colonies of bees out from between the clapboards and the plaster of a house. A correspondent, Mr. A. D. Hopps, of La Moille, Ill., tells how he succeeded in getting bees out of the dead-air space between the two walls of a brick house. With a small syringe he says he threw in carbolized water all through the sides; and as carbolic acid is very obnoxious to bees, in a short time they came out, when he hived them. A cloth dampened with carbolized water is reported to have been placed over supers filled with sealed honey, to drive the bees out, and I believe I have seen it stated that the fumes of the acid will drive all the bees, in the course of a few minutes, out of the super into the brood-nest. I have never tried the plan; but I do know that, years ago, when we sprayed our combs with a carbolized solution, it was difficult to get the bees to go on them again, as they dislike the stuff as a dog does the smell of ammonia.

APIS DORSATA HERE AT MEDINA AT LAST; GIANT BEES FOR SALE.

YES, we have them, and great big beauties they are. Talk about golden Italians — they are noway to be compared with these beautiful giant bees. Yellow? Well, I hardly know whether Doolittle would call them yellow, orange, maroon, or what not; but to my notion they are the handsomest yellow bees I ever saw. Why, they look like great big yellow Italian queens, and might almost be sold for such. They came by express all the way from Bombay — not a bee missing, and evidently they are in just as good order as they were the day they left our missionary friend Mr. W. E. Rambo.

No doubt a good many of our subscribers would like to get these bees; and as our supply is limited we are going to make arrangements so that at least a few can have them. No, we are not going to sell *queens*, but we'll sell bees put up just as Mr. Rambo sent them, and charge 10 cts. apiece. Can't help it if you do want more; and in order to make the supply hold out we can let only one bee go to a customer. How shall we put them up? Exactly as Mr. Rambo has put up our supply. They will not be sent in a queen-cage, but will be placed in a little vial of alcohol, packed in a mailing-block.

Lest some of you may have inadvertently gotten a wrong impression (through no fault of mine), I will state that the shipment was not an aggregation of *live* bees, but dead ones put up in a bottle of alcohol — perhaps two or three hundred. This is the package of which I spoke on page 499, and which I thought *might* be live bees.

These bees are about the size of those shown on page 501, only they appear to be more pointed. The half-tone does not give a fair representation of these beautiful bees.

THE A B C OF BEE CULTURE IN THE PRESS, AND ITS REVISION.

THIS work, comprising some 475 pages (the last edition being entirely exhausted a few weeks ago), is receiving a very thorough and comprehensive revision. The work is more than half revised, and already 150 pages have been entirely rewritten. If the revision continues at the present rate, the work will be largely rewritten by the time we expect to have it out, some time in September. The subjects of "Apiaries" and "House-apiaries" have been recast. "Crimson Clover" is a new subject. The subject of "Bees" has been enlarged to take in *Apis dorsata* and other races of bees. "Comb Honey," as well as "Comb Foundation," has been rewritten from beginning to end, besides considerably more being added. The subject of "Hive-making" is entirely recast. In the former editions, only one hive was described in detail. This was followed with matter showing how to make hives, sections, etc., by *power* machinery. No particular hive is now described in "Hive-making," and the matter is simmered down to the processes of cutting up stuff on foot-power and light-power machinery. As to dimensions, the reader is advised to send to some manufacturer for a sample standard hive in flat, and from the parts of this secure his measurements. "Hives," an entirely new subject, contains a description of all the best ones. Among them may be seen the old-style Langstroth, the Simplicity, the Dovetailed Langstroth in its various forms; the Danzenbaker, the Heddon, the Dadant, and, under this head, large and small hives. This is followed by a discussion on double-walled or winter hives. Various principles are illustrated, all the way from the loose to the closed-end frame. This is a rather new departure in the A B C of Bee Culture; but as I went over the field I felt that *principles* should be discussed, showing some of the best samples of those principles, leaving the reader of the book to make his own selection. The subject of "Hives" is followed by three more new subjects, "Honey as a Food," "Honey Cooking-recipes," and "Honey-peddling."

PRODUCING QUEEN-CELLS BY THE DOZEN A LA DOOLITTLE IN THE LOWER STORY, ALONGSIDE OF A NORMAL LAYING QUEEN; HOW IT IS DONE.

HERETOFORE Doolittle cells were produced either in the upper story or in the lower one where the bees were about to supersede the queen; but our Mr. Wardell can now get the bees to accept and build out Doolittle cell-cups in the single story of any colony having a *normal* queen. There may be nothing new about it; but so far I have not yet known of the practice being carried on in the manner stated, in the lower story, or brood-nest. Our apiarist makes use of the same general principle as when cells are produced in the upper story separated from the lower one by a queen-excluding honey-board.

Early this spring many of our colonies were weak, owing to the severe winter, and it was not practicable to rear queen-cells in the upper story. Accordingly, Mr. Wardell had queen-excluding division-boards constructed so that he could divide off any brood-nest in the yard into three divisions. The two outer divisions he leaves to the queen, and the middle one he devotes to the raising of cells, while the bees, of course, have access to all three parts. He prefers to have the central space (shut off on either side with perforated zinc) wide enough to take in three frames. In this case the middle frame is the one that has the cell-cups. The frame on each side of this should have young larvæ, as he thinks they draw the nurse bees. When he opens the hive to take away ripe cells and put in their place cell-cups, he puts the queen now on one side and then on the other side of the central portion devoted to the raising of cells. This way the whole hive is kept in a normal condition. At no time is the colony queenless, and yet it is raising cells by the dozen.

He prepares cell-cups in the usual manner, and inserts the royal food and a young larva in each cell. Twelve of these cell-cups are fastened to the bottom edge of a comb, or to what I believe he now prefers, a horizontal stick mounted in the center of the frame. This frame is then put into that portion of the brood-nest from which the queen is excluded. The hive is then closed up, and left for several days. Strange as it may seem, even though a colony is not particularly strong, having only, perhaps, four or five frames, and even though the weather is so cool at night that there is danger of frost, those cell-cups will be drawn out and capped over.

But there is one very important requisite; viz., stimulating feeding, or the bees will do nothing, and right here is where many have failed. It does not matter whether cells are reared in the upper story or in the lower one, there must be stimulative feeding going on, *providing* honey is not coming in. When such feeding is intelligently practiced, we are successful in producing cells, even though the weather has been too cool for the bees to fly; but of course the bees have to be warmly packed in chaff. The upper row of cells shown in the illustration on page 498 was produced in a seven-frame colony during the month of April when many of the days were so cool that the bees could not fly. One portion of this nucleus contained a laying queen that was performing her regular functions; and the other portion, separated by a perforated zinc-board, contained a frame of cells.

The lower row of cells was built during warm weather, in a single brood-nest—the other conditions, such as stimulative feeding, etc., being the same.

Cells that are built on a stick show off better, doubtless, for the reason that there is less wax to use; under these conditions the bees use no more material than is absolutely required to make the necessary inclosure of their royal mothers to be. When cell-cups are fastened on the bottom edge of a comb, bees have a tendency to work in a good deal more wax, as will be seen by the upper illustration.

There are some colonies that, instead of building round, shapely, blunt cells, like those shown in the lower row on page 498, build pointed ones; but we have never been able to discover that the queens from such cells were not as good as those that look more shapely to the eye, the kind that remind one strongly of the "big double-jointed California peanuts."

The question has often been asked, "How much royal jelly is required for each cell?" Doolittle says, enough to make up the equivalent bulk of a double-B shot. Mr. Wardell says he may use more or he may use less; but if any thing he would make the supply as liberal as possible. One ordinary natural queen-cell of two or three days' growth, we will say, should contain enough royal jelly for half a dozen cells, and sometimes enough for a whole dozen. The royal jelly fed should be of about the right age. It would not do to have it too thick and stiff—but about the age, when the cell is about three days old.

NOTES OF TRAVEL

BY A. I. ROOT.

After bidding good-by to my good friends at Norfolk, Va., I started "on to Richmond," and I greatly enjoyed the trip along the borders or through the edge of the Dismal Swamp. Some of the friends may remember how often Harriet Beecher Stowe referred to this locality. After getting away from Norfolk the truck-gardening gradually began to give way, and then we had miles and miles of unbroken forest and dense swamps, the undergrowth so thick that a man could scarcely squeeze his way through; and along the sides of the railroad were some of the most beautiful wild flowers, or perhaps I should say the most beautiful *flowers* I have ever seen anywhere, in cultivation or out of it. I was especially attracted by a bush growing five or ten feet high, covered with purple flowers, some of them almost as large as roses. These seemed to grow in the greatest profusion. No effort seems to have been made to reclaim this swamp, so far as I could see along the railroad. Perhaps there is a difficulty in getting the water out of the way. Occasionally we saw little patches indicating an attempt at gardening around the stations; but we passed through many miles of country where no attempt seemed to have been made in the direction of agriculture. Of course, when we reached a large town we found nice gardens in the suburbs for a mile or two out. Especially was this the case as we neared Richmond.

I visited Richmond solely for the purpose of going over the strawberry-farm of Thompson's Sons, of Rio Vista, which is located only a few miles out of Richmond. In fact, the street-car line is extended within two miles of the place. When I wrote that part of the tomato-book entitled "How to Support a Family on a Quarter of an Acre," I directed that the land be located at a four corners, if practicable, so as to have a wagon-road on at least two sides. Then I said that a neat and pretty sign or bulletin-board should advertise the plants, etc., that were for sale, and finally that the plants themselves should be clear up to the roadway, and that those fronting the roadway should be so choice that they would be a standing advertisement of the business. Therefore I was greatly pleased to find that the Thompsons had such a location, and one of the handsomest bulletin-boards one often sees in a country place, reading as follows:

C. H. THOMPSON.

I can sell you trees for half what you pay when you send "away off." Apple, peach, pear, plum; ornamental hedge-plants; roses for yards, cemeteries, etc. Strawberry-plants; raspberry, blackberry, gooseberry, currant, asparagus roots; rhubarb, cabbage, tomato, egg-plants, lettuce, sweet potatoes, etc. I plant orchards, vineyards, lay out lawns, pleasure-grounds, parks; furnish trees, etc. Parties who wish their yards and lawns cared for apply to me. All kinds of cut flowers in their season.

Then right up by the road, and down in the valley below the road, there are beautiful flowers. Some of the finest sweet peas I ever saw anywhere were there; and although flowers do not enter very much into the business of Thompson's Sons they have enough of them scattered around to make the place very attractive.

Another thing that brought joy to my heart was the sight of a great lot of men, women, and children scattered around near the buildings, for it was just a little past dinner-time. The younger ones were flitting around, evidently playing games much as they do around a country schoolhouse. These were his strawberry-pickers and the people employed in various avocations over the grounds. By the way, they were remarkably well dressed and well behaved for colored people engaged in such work. I do not know whether friend Thompson has any thing to do with this or not. One thing spoiled the beauty of the place — at least the grounds away off over the hills — and that was a long-continued drouth that was just then prevalent around Rio Vista. It gave us an opportunity, however, of seeing what varieties of berries were best able to stand drouth. And, by the way, the Thompsons have over 100 varieties of strawberries on their test-grounds. I think they have almost every thing that has been written or talked about, and a good many others. I tell you it *is* a task to look over and study the desirable as well as the undesirable peculiarities of 100 different kinds of strawberries. I was more or less familiar with a good many of them. To give you an idea of the magnitude of their business in plants, let me tell you that I saw a letter from the railroad company concerning a single shipment which seemed to be lost, valued at $120.

The price of berries at Rio Vista was very low, just as it was at Norfolk; but in order to meet these low prices, the Thompsons were paying the pickers only *a cent a quart* instead of two cents. The pickers did not seem to feel very badly about it, so far as I could see, and there was no indication of a strike; on the contrary, they all seemed to be very glad of the privilege of picking whenever more berries were wanted. I think some of the fruit was actually sold as low as three cents a quart by the bushel.

I was especially anxious to see the Darling and Earliest on the grounds of the originator; and I was pleased to see quite a good quantity of fruit still remaining on the Darling, notwithstanding the drouth. When almost every other berry had succumbed more or less, the Darling seemed to be holding its own, both in size of fruit and quantity of berries; and they told me they had picked more from the Darling and Earliest than from almost any thing else. Of course, the berries are not as large as some of the later varieties, neither are they as firm for shipment; but, all things considered, they fill a place among the very earliest, to an extent that it seems every strawberry-grower should give them at least a trial. By the way, I think I never saw such great heaps of berries around a single plant before as I saw at friend Thompson's; but the drouth was such that just acres of them will probably never be worth picking. In fact, if rain had come the very day I was there it is very doubtful whether many of them would have been saved. Perhaps one of the finest large berries that were fine and large in spite of the drouth was our old friend Sharpless. Of course, it did not bear as many quarts of fruit as some of the newer ones. I find in my notebook that I have the Howell marked as being a variety that held its own remarkably when all the rest were giving up to the dry weather.

One little plot of flowers near the house, that attracted my attention especially, was a bed of mixed sweet-williams. I am told they are very easily raised; and if so much bewildering beauty can be produced by a bed of late improved sweet-williams, I do not see why every family does not have one.

This little industry, made so attractive on a public road, was turning out just as I should expect it would. Vehicles were stopping every little while to purchase flowers. Their attention was first called to the beauty of the display down in the little valley just below the road, and then the sign I have spoken about informed the passers-by that, furthermore, all these things were *for sale*. People stopped to buy flowers, stopped to buy berries, and stopped for vegetable-plants. In fact, there was something somebody wanted almost every day. Mr. M. T. Thompson, the father, has been almost all his life testing new varieties of strawberries as they are brought out, and giving the world many of his own originating. Perhaps I might say that he introduced the Haverland; also the Carrie, a seedling of the Haverland; also the Rio, named after the locality, Rio Vista, and quite a good many others that are pretty well disseminated.

In order to reach home before Sunday I was obliged to make my stay quite short; but I got a lot of pointers in regard to strawberries and strawberry-growing that I expect to give to our friends all along as they come to mind.

Permit me to say a word about agriculture generally, north, south, east, and west. In Florida we have many wonderful illustrations of the amount of stuff that can grow on a small piece of ground; for instance, orange or other fruit-trees. One wonders where the tree could gather fertility for its enormous load of fruit. But these great growths in Florida and California are exceptions. Only very small tracts, comparatively, are under *successful* cultivation. I have heard it stated that not one acre in ten, either in California or Florida, is of any use at all to anybody; and in some localities there does not seem to be one acre in a hundred that is devoted to growing crops. In a recent trip through Virginia it made me feel lonesome to see so much waste land or wild land—thousands of acres with not even a fence around them. In localities where the ground is brought up to a high state of fertility, as it is around Norfolk, this fertility is mostly maintained by the use of commercial fertilizers. They do not plow green crops under as we do here in the North. By the way, I am always looking out for clover-fields, no matter where I travel; and I have always succeeded in finding clover—at least a field or two—wherever I go; and you can rest assured, friends, that when a field once produces a heavy growth of red clover, it can be kept right on producing valuable crops year after year.

It always does me good to see a country where the land is *all* occupied. On my way home I could not but notice the contrast along the valley of the Susquehanna River. The Pennsylvania Railroad runs for miles and miles through some of the most fertile valleys I have ever seen anywhere; and for long distances these valleys slope gradually down to the river, so the passengers on the train can have a full view of miles of the richest agricultural country I have ever seen. Every bit of the land is fenced in—sometimes away up the mountain-sides, and every acre is producing a luxuriant crop of *something*. The land has been so well farmed that bare ground is seen for only a very short space of time. Something green and growing seems to be everywhere. I never before had passed over this route in May, and it was especially delightful to me. From that beautiful observation-car (see another column) I had a magnificent view of the farming country on both sides of the track; and along in the vicinity of Horseshoe Bend it seemed to me I had never seen any thing so beautiful. Riding in a common car, and looking out of the small-sized windows, one can hardly take in the whole wonderful feat of engineering performed in getting up the mountain-side by these graceful curves that almost bewilder one as he takes a sweep around to almost where he was a mile or two back, only a little higher up. The observation-car has a rear platform with seats. Here the view is unobstructed. Then there are arrangements to protect the passengers from dust so far as possible. Perhaps I may add that, inside of the car, a stenographer and typewriter are at the service of all the passengers, *free of charge;* and when it gets to be dark, the latest and most improved system of electric lighting makes it easy to see to read or write, or do whatever you choose. Besides this, the car runs so still that one can write without a bit of trouble. I tell you, it is worth paying a little extra to see what is possible in the way of modern conveniences and inventions to make travel easy and delightful.

OUR HOMES,

BY A. I. ROOT.

We that are strong ought to bear the infirmities of the weak, and not to please ourselves.—ROM. 15:1.

While I was in California several years ago, in company with several bee-keepers, we found it necessary to stop over night at a country hotel. Somebody said there was a revival meeting going on at the church a little way off, and I rather urged the crowd to go with me to church. I did not know what denomination the church was, and, for that matter, I did not care, or I thought I didn't. The text was from John 13:14, in regard to washing feet. The preacher occupied the whole evening in quoting the Bible from beginning to end, to prove that every follower of Christ ought to obey *literally* the command. In fact, he seemed to think it of more importance than any other command that Jesus ever gave his disciples. His sermon was long, and my bee-keeping friends were not at all edified or profited; and I almost made up my mind that I would not urge people again to go to church as I did that evening. Now, I am not reflecting on that people or on that denomination, mind you. I have learned by inquiry and observation that they are a most exemplary set of folks. They pay their debts, attend to their own business, take care of their poor, and set a grand example of Christian living for many of the other denominations; but I do think they do make a great mistake, first, in singling out just *one* of Christ's commands; and, second, in insisting so strenuously that it be taken literally. The little story I am going to tell you illustrates, perhaps feebly, something that I think the text includes also.

I think the Savior chose this little object-lesson because his disciples greatly needed to be taught a lesson in humility. They were getting to be proud. He wanted to teach them gentleness, meekness, and forbearance. He even went so far as to wash the feet of Judas—that is, if I have a correct understanding of the matter. I rather think that John himself, who told us about it, rebelled somewhat at the act. Perhaps he and some of the other disciples said to themselves, "Why, is he going to condescend to wash the feet of that miserable lying hypocrite?" Peter, you remember, at first refused outright; but he afterward changed his mind. Now for my story.

In my recent trip east, in coming home I got on the train at Washington, supposing there would be no change of cars between there and Pittsburg; therefore, as we approached Harrisburg, when the conductor announced that we would change cars for a great string of places, I paid very little attention to the matter, and did not even notice that he mentioned *Pittsburg;* so when the other passengers were leaving the train at Harrisburg I sat still; but when I saw *everybody* was leaving I began to ask questions. Then I began to fear that the Pittsburg train would start before I found where it was. I asked an official which way I should go to find the Pittsburg train. He motioned me to a train just getting ready to start. Now, I have had some experience in making mistakes, and in making people understand just what I wanted to ask when there wasn't a minute to spare; therefore I have for years past made it a point to have my ticket in my fingers, and before I get aboard I always ask somebody who ought to know if this is *my* train. In this way they can look at the ticket and simply answer yes or no.

As I discovered I had very little time I approached the colored porter near a Pullman car, held up my ticket as usual, and asked if that was my train. He said it was. But I told him I wanted a common coach, and not a Pullman car. He told me to get right on, as the train was about ready to start, and that he would fix me all right. But I still demurred in getting aboard of the Pullman car, when he grabbed my satchel before I knew it, and told me to follow him and he would "fix" me all straight. I supposed he was going to tell me to walk back to the common coaches; but after we got aboard he said there were no common coaches on that train, but still it was all right. Now, when I came home from Bermuda I rode on a fast train, all Pullman cars, from New York to Cleveland, and that, too, without paying any thing extra. They do this with a limited number of passengers rather than run an extra train. I supposed that perhaps some such arrangement had been made to carry me from Harrisburg to Pittsburg. This colored porter seemed very bright, and master of his business. I have admired these fellows before, and I admired this one. His speech was clear and distinct, and he had the air of a man who knew what he was doing, and withal he had a way of making himself very pleasant and agreeable to everybody. After we had ridden a little way he informed us there was a beautiful smoking-car in front and a fine observation-car in the rear; that we could ride in either one of them without any extra expense, leaving our baggage just where it was. Now, I did not care for the smoker, you may be sure; but I did want to ride in that observation-car, for we were soon going to pass Horseshoe Bend, and I knew the scenery was very beautiful along there at any season of the year—much more in spring. But I had some sort of presentiment that there was going to be a hitch before I got through; but I concluded, under the circumstances, to pay a little extra for my blunder, if need be.

After a while I became absorbed in taking in the beautiful scenery through that great big plate-glass window, and was aroused only when the conductor said, "Tickets, gentlemen!" Mine was in my fingers as usual. I presented it. He looked at it very attentively quite a spell, then said, without removing his eye from the ticket:

"You read this ticket over when you purchased it, did you?"

"Yes, I read it through once at least, shortly after I received it."

"That being so, why did you board this train?"

I explained the circumstances, and told him just how I came to be aboard of the train. But he began to look angry, and said something like this:

"You admit you read your ticket over, and no doubt noticed that it says, in heavy black type, in a paragraph by itself, that the ticket can not be used on the Pennsylvania Limited, or any trains of that sort."

."My dear sir, I did read the ticket over, as I told you, but the part you refer to I did not pay any particular attention to, because I had no thought of riding on any train besides the one I was expected to take. Neither did I know until this minute that this train is what you call the Pennsylvania Limited. I am very sorry that I have broken any rules, and I am ready to make good any thing that is not right. The porter is responsible for my being here, as I have explained to you. In fact, when he took my satchel out of my hand I was *obliged* to follow, and the car started just as soon as we were inside. I will get off at the first stopping-place, or pay the difference."

He still seemed to be angry, and accused me of a deliberate attempt to cheat the company, and said he would have to take up my ticket, which would have to be forfeited, and that I would have to pay the regular fare. But I was not disturbed nor angry, for I have learned by experience that one who is trying to do right seldom has reason to be troubled. I told him I would pay whatever was fair or right, but that I was *not* willing to be accused of trying to swindle anybody — not even a railroad company. I showed him my name and address, and told him that I could easily satisfy him I had always paid for whatever I wanted, and had never been guilty of trying to steal any thing from any individual person or company. He finally asked me if I could identify the porter who said the ticket was all right for that train. I replied that I could, most assuredly. He went off with my ticket, and I looked at the scenery all the same, feeling sure I could maintain and prove my innocence. About a quarter of an hour after, the Pullman conductor, a much more gentlemanly-appearing man, came to me and said the conductor insisted I had been trying to work a little game on them, but he did not believe it himself. Said he :

"If I am correct, Mr. Root, you are quite willing to pay the extra fare of $2.50 for riding on this train from Harrisburg to Pittsburg."

I replied that I was, most assuredly. Then he added, "Would you object to stepping out on the platform at Altoona just a minute to present your case to Mr. ———, the general agent, who adjusts all such matters?"

I assured him that I was willing to do any thing or pay whatever amount was deemed proper, but that I was *not* willing any imputation should rest on me of an attempt to defraud, or *sneak* my way anywhere.

As the train approached Altoona I found the porter and spoke to him about it, and to my great astonishment he denied having seen any ticket at all. He declared emphatically, and stuck to it, that I simply asked him if that train went to Pittsburg, and he said it did, and took my satchel and valise. Then I discovered for the first time that the porter, in order to save himself, had told a falsehood. At first I was indignant, and was going to denounce him ; but before I had spoken, a better spirit whispered to me something like this :

"This poor fellow is in much greater trouble than you are. If you denounce him for telling a falsehood in order to cover his mistake, he will probably lose his position, which will be much more *to him* than ten dollars or such a matter *to you*."

But if I screened him from the consequences of his mistake and falsehood I should have to admit to the railroad officials that I really *had* been trying to pass a ticket that I knew was not good for that train. I talked pleasantly with him about the matter, but he was so positive and important that I began to fear he was not going to own up at all. By talking to him very plainly, and telling him he must come up before the officers of the company and hear my statement, he finally backed down enough to admit he did see I had a green ticket in my fingers, but that he did not examine it enough to see that it was an excursion ticket sold at a low price. To tell the truth, at the time I proposed to get off at the next station I did not know the Pennsylvania Limited stopped only once or twice on the whole route. I asked the porter to come along up to the conference with the railroad officials; but his bright and manly demeanor had all left him. He hung his head down, and said he was sure they would not need him. I met the three gentlemen discussing the matter on the platform—the regular conductor, the Pullman conductor, and the general manager. These officials were all very much better dressed than myself. I note this incidentally. The general manager said at once that they had no discretion in the matter. According to the rules my ticket would have to be surrendered, and I would have to pay my fare. I confess, in *one* respect I rather enjoyed the situation. I enjoyed it because I had heard of many cases of injustice in matters of this kind, and I was anxious to see whether I should be able to convince them of my honesty or not. I began to smile a little before I spoke, and I rather think this helped my cause. What I said was something like this :

"Gentlemen, I admit I have been stupid ; but I never can admit that there has been any purpose of wrong in my heart. I am always ready to pay my way, and I am ready to pay now what you say is right and proper ; but I still insist that I am an innocent party in this transaction. Your porter is a very nice fellow, and I hope you will not be hard on him. I believe him to be a very capable and trustworthy man ; but I am very sorry to say that in this case he has not told the exact truth. I had my thumb on my ticket when I approached the train, like this" (making a motion); "I held it before him, he took a good look at it, and declared the ticket was all right for this train. Let him come up here, and say if I have not stated it correctly."

I turned to look for him, but the poor fellow sat on the lower step of the car, with his face between his hands. Then I had to laugh again. Then the general manager laughed too, and then the Pullman conductor laughed. The manager said, "Mr. Root, you get on to the train, and go on to Pittsburg, and we will all of us learn to manage better next time."

The regular conductor still looked cross about it, and ventured to suggest again that I admitted having read my ticket, and then afterward used it in trying to ride on that fast train.

Now, I learned several lessons from this little transaction : First, when you purchase a ticket, especially one at reduced rates, read it over carefully, and note the conditions under which it is accepted. Second, when you get on a train, ask the conductor when he calls for your ticket if there is any change of cars before you reach destination, so you may not be taken by surprise as I was. Last, but by no means least, I learned that it is not always best to show up a man who has tried to injure you by telling a falsehood. Some travelers, as I happen to know by experience, would have denounced this man as a "lying nigger," and probably done all they could to get him discharged. I confess it pains me to even put the disagreeable words in print; but I have heard them used so often when I was sure they were entirely uncalled for that I feel glad to say a word in defense of the colored man, even if he *was* tempted to do wrong. When it comes to a matter of truth between a colored man and a white man, I fear that it is too *often* true the colored man stands no chance. But, dear brothers and sisters, this ought not to be so. Because a man's or a woman's complexion is darker than your own, is that any reason why that person should not have a fair chance with you in matters of *truth and right?* God forbid that we should take advantage of any man's misfortunes. There are lots of generous people in this world. It is an easy matter to be generous where it is a matter of dollars and cents; but when it comes to the question as to who told the truth, you or somebody else, how many can afford to be generous when even keeping still may leave the impression that *you* have been untruthful? As a rule, I believe it is right and proper to rebuke falsehood — to let the truth come out; but are we always ready to rebuke and reprove with gentleness? People under temptation often yield to the inclination to get out of trouble by resorting to falsehood. Such an act may be a *lie*, but it may not be; and even if it is, would it not be better to use some softer word in trying to lead the guilty one to repent and confess?

Another thing: When we have the advantage of our opponent, say by wealth or position, may be by the *color of our skin*, does it not behoove us as Christians to be *very* careful how we take advantage of our position in being hard and severe on somebody who is less fortunate? Jesus, as I have said, probably washed the feet of Judas, and no doubt there was a murmuring among the disciples. The Master knew it, and yet he thought it best to humble himself thus before Judas and before every one of that little band of followers. *He* knew Judas better than any other living soul did; and yet he bore with him. He did not call him a thief and a liar as the square-footed John did several times, but he bore with him, and washed his feet, and finally received in meekness and gentleness that cowardly, traitorous kiss. Oh what an example the Master has set for us all! Even John, the beloved disciple, could not put up with Judas. In God's holy word he gives Judas a fling almost every chance he can get; but the Lord and Master bore it all, and *put up* with it all. If any thing in the wide world could have *made* Judas better, it was the loving and forgiving treatment that he received at the hand of his Savior. If it were not that we are told Judas was the victim of suicide, I do not know but I should even yet hold that he might have died a penitent sinner.

Another thing: Before you are too hard on the conductor, let me say that I have known people again and again to try to cheat a railroad company in this way—people, too, whom I had good reason to believe would be entirely above such a thing. One man I recall who claimed by his talk to be a professing Christian was in a first-class coach, with only a second-class ticket in his pocket; and when the conductor told him he would have to go back in the car where he belonged, he was not only abusive but profane in denouncing railroad companies, conductors, and every one who has any thing to do with the running of trains. While conductors meet so much of this thing, and from men who ought to be ashamed of it, I do not wonder that they become suspicious of humanity. They ought not to get angry, it is true; but sometimes, I have reason to believe, their temptations to be so are very great.

HIGH PRESSURE GARDENING

BY A. I. ROOT.

ANOTHER ONE OF MY "HAPPY SURPRISES."

Quite a number of years ago we purchased of Storrs & Harrison a Downing everbearing mulberry-tree; but it did not seem to grow very much. The berries were few and dried up, and I did not think very much of mulberries until I saw a tree at a neighbor's, growing close by a little fountain in his garden. Some of you may remember I told you about it. The berries were large and luscious, and I talked of having our tree grafted with some cions like his tree. But some of our readers suggested that, if our tree had better care, and made a more vigorous growth, it would bear *good* berries *too.* I accordingly spread about a wagonload of old fermented manure all around the tree, a little further out in every direction than the branches extended. That was two years ago. I did not see very much improvement till this year, when the tree seemed to put on new vigor.

Well, to-day, June 20, we are picking the last of our strawberries, and I was wondering what kind of fruit I should find to take their place. I generally get hungry for berries between nine and ten o'clock in the forenoon. Last evening, after supper, I had a wheelride to see some gas and oil wells about ten miles from my home; and just a little while ago (it is now half-past nine in the morning) I began to feel very hungry for berries, and started out to see how the potatoes and other things had grown since the bountiful thunder-shower of last evening. I happened to pass near the mulberry-tree; and as I looked up into the tree I experienced surprise No. 1. The tree was pretty well dotted with black spots of large rich-looking mulberries half the length of your little finger. I bent a limb down and tasted them, and that was surprise No. 2. I thought then they were more delicious than strawberries, or berries of any kind. I called Mrs. Root, and she was equally astonished. She hadn't time to eat very many; but I really could not get away from that tree until I had for the first time in my life had just all the *mul*-berries I wanted. After I was pretty well satisfied, I noticed our Minorca rooster was walking around the tree with his followers, and saying something that I understood to be dissatisfaction about something or other. When I looked down at my feet I understood what he said — at least I thought I did. He was saying something like this : "Look here, old fellow; my hens and I have been coming here every morning to gather up the mulberries that lie on the ground at your feet, and we have been wondering for a quarter of an hour past if you were *ever* going to get enough, and go away so that we could have our share." Then I stooped down and saw the closely mown lawn was also pretty well dotted with mulberries so ripe that the storm of the night before had knocked them off. They really were sweeter than those on the tree. And then I ate a lot more, because it seemed a pity to feed chickens on such delicious fruit. Pretty soon I was admonished by several robins on neighboring trees that *they* too found my presence somewhat of a hindrance according to *their* ideas of things. And then Mrs. Root said she had been scaring the robins away for several days, but she supposed the berries were not yet ripe.

Now, that tree is really worth a five dollar bill. It is worth every cent it cost, and ever so much more. There are new shoots on the tree that have grown already this season fully two feet in length ; and the only reason why we did not have mulberries years ago is because we did not "feed" the tree. Perhaps I should say that our lawn — in fact, the whole dooryard — was made on yellow barren subsoil. When we graded around the house we scraped off the sod in order to lower that portion of the yard where we wanted it. In consequence some places were made very rich and others very poor. You may remember I gave our Early Harvest apple-tree a heavy manuring before we could get any good apples.

Now, my friends, if you haven't a mulberry-tree in your dooryard you had better get one, and be sure you make the ground *rich* so the tree will grow. Mulberries need a great deal of water ; therefore they ought to have some sort of irrigation, or else the ground should be kept cultivated according to the modern method of growing apples, peaches, and almost every thing else. Stir the soil after every rain, or else have it mulched with something that will keep down weeds and hold the moisture from one rain to another.

BEES FOR FERTILIZING CUCUMBERS IN A GREENHOUSE, ETC.

Did you ever have any experience with bees in cucumber-greenhouses? I have furnished one man six colonies for the last three falls, but before spring they would dwindle and die out so he would have to put in two or three more colonies in the spring. They will not work with plenty of honey in the hive, so I take away the most of the honey and then they feed syrup in open feeders in the greenhouse. This gets them to work on the blossoms the best. The ventilators are all screened. The greenhouse is 450 ft. long by 40 wide, heated by steam from cider-mill boilers.

Our town is on a boom this spring, as we are building a cement factory here capable of turning out 15,000 bbls. of marl cement per day. The building, when completed, will cover 7 acres of ground, with marl enough to last 200 years. The mile of side track will be completed inside of a week. Several carloads of heavy machinery are here now; brick and tile, no end to it, as well as lime and cement.

Just tell A. I. Root to call up this fall and see how Southern Michigan looks. He will find fair bicycle-tracks on the old Chicago road.

Quincy, Mich., May 13. J. S. Cleaveland.

I always fertilize my Irish potatoes with cotton seed, not meal, and have never seen a bug on them. I have been very successful in getting large yields, on a small scale, with little labor. Cotton seed is a great fertilizer for this soil. No kind of *seed* will germinate in the meal, but the meal may be applied after the seeds have come up. J. T. Etheredge.

Delray, Tex., June 8.

KEEPING FLIES OFF FROM CATTLE WITH THE FAULTLESS SPRAYER.

I have found out that coal oil alone has no effect on our *Southern* flies. I now use with great success 2 pints coal oil, 7 pints raw linseed oil, ½ gill crude carbolic acid (less of pure white acid).

Gesser, La., June 9. Jas. I. Burns.

FAULTLESS SPRAYER FOR FLIES.

I think if A. A. Harrison, page 328, will investigate a little more closely he will find the spray does not kill the flies, even if it *does* knock them down. He will find that most if not all of them, after rubbing the oil out of their eyes, "come around to be killed again." It's a good thing nevertheless. I like it most for cleansing poultry-houses.

Union Valley, N. Y., May 1. Emmet B. Kibbe.

Humbugs and Swindles.

ANOTHER COMPLAINT AGAINST H. P. ROBIE.

Mr. A. I. Root:—Some time ago you published a letter from a bee-keeper stating that he had shipped honey to H. P. Robie, of Sioux Falls, S. D., and he had refused to pay and would not answer letters. A year ago last February I shipped four cases (about 100 lbs.) to the same party, and got a letter stating the honey had arrived in good condition. Since then I can get no answer from him. It looks as if he did not intend to pay me. I think the names of those who rob bee-keepers of their hard earnings ought to be published for the benefit of others.

Dona Ana, N. M., May 30. W. C. Gathright.

ONE EXPLANATION OF THE SUCCESS OF FAKE REMEDIES.

Mr. Root:—Fully indorsing your recent Home-talk articles on the numerous swindling quacks and "scientists" who, for personal gain, are assuming to cure diseases that so far have baffled the skill of eminent doctors the world over, I want to tell you of a *fake* I ran across while in Cincinnati last fall. Seeing advertised and displayed in several show-windows in the business portion of the town a large box of rings labeled "Magnetic German Rings," I noticed some iron (polished) finger rings, worth at cost about one cent apiece. A placard showed they were sold at $5.00 apiece, and were guaranteed to "*cure rheumatism in 30 days or your money refunded.*" Now, common sense taught me that a simple finger ring would not cure an organic disease, so I was puzzled to know how the dealer could expect to do business with such frauds. It made quite an impression on my "gray matter;" so, next day in conversation with a prominent man of the town, a confidential friend, I mentioned the matter and inquired where the "fake" part came in. He was posted, fortunately, and solved the riddle. Said he, "The dealer sells the ring and pockets the $5.00, while the deluded victim goes off with a 30-day return certificate. The dealer has three chances to keep the

$5.00. In 30 days the wearer may die, lose the ring or certificate, or get well of the disease. The last chance is an occurrence that would have happened anyhow, if no ring had been bought." And he added, "No one but ignorant chaps will bite at such a thing." It looks to me as if some check should be put on thousands of such frauds that are invented to relieve suffering humanity, who, in their bodily distress, will part with their last dollar in seeking after relief.

CHIP HENDERSON.

Murfreesboro, Tenn., Mar. 23.

SPECIAL NOTICES BY BUSINESS MANAGER

See how to get GLEANINGS for 6 months for 25 cts., on page 491.

BEESWAX DECLINED AGAIN.

Offerings of beeswax are so plentiful that the market price is declining, and we are obliged to reduce the price we pay to 23 cts. cash, 25 cts. trade, delivered here for average wax.

LADIES' WHEEL, $15.00.

One $50.00 ladies' Ajax, almost as good as new, and been used but little; a fine bargain that we offer for only $15.00 cash. Speak quick if you wish to secure it. Or we will furnish it in trade for $17.50 worth of honey at market quotations.

OILED COTTON GLOVES FOR HANDLING BEES.

We are prepared to furnish at 50 cts. a pair, postpaid, cotton gloves soaked in linseed oil, and sting-proof. We have them in three sizes—small, medium, and large, corresponding to ladies', gents', and extra large rubber gloves listed in our catalog.

CARLOAD SHIPMENTS.

Since our last report, 8 weeks ago, we have shipped a carload to Buell Lamberson, Portland, Ore.; one to the Abbey-Hardy Co., Grand Junction, Col.; three to L. A. Watkins Mdse. Co., Denver, Colo., and are loading another car for the same firm as we go to press. Two cars have gone to our branch at Syracuse, two more to Chicago, and one to St. Paul; one to Walter S. Pouder, Indianapolis, Ind., and six cars of goods for export, besides ten cars of lumber, boxes, and bicycle-crates. We still have export orders for some six to eight carloads to ship in the near future.

JAPANESE BUCKWHEAT—ADVANCE IN PRICE.

Greatly to my surprise, this variety of buckwheat has run up so that the best figures we can make at present writing are 35 cts. per peck; 60 cts. per half-bushel; $1.10 per bushel; 2-bushel bag, $2.00. At the above price, bag is included. A good-sized pamphlet, giving full directions for growing buckwheat, and articles from buckwheat-growers, north, south, east, and west, will be furnished for 5 cts. each, or sent free to any customer who buys 1 lb. or more of buckwheat. Pound by mail, postpaid, 15 cts.; 3 lbs., postpaid by mail, 40 cts.

SPECIAL OFFER ON GLEANINGS.

Notice on page 491 the special low offers we are making for GLEANINGS IN BEE CULTURE, with special reference to increasing our list of readers. We urge our present subscribers to call the attention of their bee-keeping friends and neighbors to these very low offers. We shall be pleased to mail sample copies to as many names as you care to send, or will send a bundle for you to distribute where they are likely to interest and secure subscribers. If GLEANINGS is a good thing as many of you believe, help push it along, and we will do our part in trying to make it still better

HONEY WANTED, BOTH COMB AND EXTRACTED.

We are entirely sold out of both comb and extracted honey of every description, and we are having frequent calls for it. We should like to hear from those who have secured a crop of either as soon as they have any in shape to ship, or who could have it ready after hearing from us. We are interested in only a choice article, either comb or extracted. If extracted, mail a sample, tell how it is put up for shipment, how much you have to offer, and the price you ask for it. If comb, say how packed, and how much you have to offer, and the price for each grade. We will exchange supplies for honey, or pay cash. Let us hear from you if you have any to offer. We especially desire to secure clover honey.

KIND WORDS FROM OUR CUSTOMERS.

My goods have come to hand, and I am very much pleased with them—not only pleased, but grateful for these grand appliances in bee culture.

Portland, Tenn. DR. W. P. MOORE.

GOOD NEWS FOR THE FAMILY COW.

The sprayer came in good condition, and is O. K. I have used it for spraying the cows. It works nicely, and I am very much pleased with it.

Goose Creek, Ky. W. W. YOUNG.

A CHANCE FOR THOSE OUT OF EMPLOYMENT.

I inclose you two dollars, as I believe you agreed to send GLEANINGS 3 years for this amount, but I don't consider the journal a cheap affair by any means. If you have more young men applicants for work than you have jobs for, just send them out here, as help is scarce, and wages good; also lots of room for men with families, who wish to rent or buy land. I am 30 miles west of Woonsocket, Sanborn Co.

Fauston, S. Dak., Apr. 11. S. B. SHIMP.

I became acquainted with GLEANINGS in 1876, having received the *American Bee Journal* in 1875. This was my first knowledge that bee-keeping was such an extensive business. I also got hold of the *Bee-keeper's Magazine*. By the aid of these three bee-papers I became very successful; but GLEANINGS was my greatest help. I have missed but a few issues since becoming a subscriber; but I have not nearly all the numbers now, as I have given very many away, and thereby secured quite a lot of subscribers,—yes, and I want to give many more away, as there are many who will read it who will never subscribe. Long may GLEANINGS live, and continue doing good. G. J. YODER.

Garden City, Mo., March 13.

JULY ON QUEENS. : : :

Large yellow queens from fine Italian stock, the best of honey-gatherers. Untested, 50c each; $6.00 per dozen. Tested, $1.00 each. Orders filled promptly, and satisfaction guaranteed.

J. W. K. Shaw, : : Loreauville, La.

In writing, mention Gleanings.

J. W. BAILEY, PUBLISHER. F. L. THOMPSON, EDITOR.

The Western Bee-keeper

Is exclusively devoted to apiculture in the

ALFALFA REGIONS,
and to
ASSOCIATION WORK

of all kinds among bee-keepers; and also gives the main points of what the other bee-papers are saying.

Monthly, 50c a Year.
No Supply-house Connections.
Seeks to Present Both Sides of Issues.

2341 Fifteenth St., = = Denver, Colorado.

Small Farm and Apiary for Sale

in the land where Alfalfa is king, and melons, cantaloupes, and tomatoes are staple crops. My lightest yield of honey in the past five years (last season) was about 90 lbs. per stand (spring count). The year before it was 225 lbs. Improved strains are frequently extracted from ten times in our three-months' flow, obtaining 400 and 500 lbs. I do not expect a purchaser without satisfying him of the truth of the above. There is 40 acres land with water-right, giving you water from the oldest and most reliable ditch in our section 365 days in the year—much more than is needed. Worth $1800. At the close of the honey season (Sept. 15th), when I will give possession, there will probably be about 200 stands of bees worth $5 00 per stand. Extracting-supers and appliances will go cheap. Reason for selling is, the altitude is too high for one of my family with heart trouble. I am 5 miles from Rocky Ford, S. E., and 7 miles from La Junta—towns of about 3000 inhabitants.

J. B. COLTON, ROCKY FORD, COLO.

A RARE CHANCE

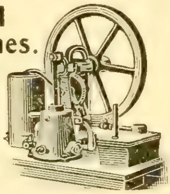
to purchase an apiary of 200 colonies of Italian and Carniolan bees in 10-frame Langstroth and Dovetailed hives. The hives are two-story, with 10 brood and 8 extracting frames in top story, all wired for extracting. Combs are straight, and in fine condition; last year's crop of honey was over 700 gallons from 150 colonies.

Purchaser can occupy the present good and convenient location of two acres, well shaded with a comfortable residence for a family, for $10.00 per month, within 100 yards of fast line of electric cars that go through main part cf New Orleans every five minutes. Mail service twice a day. Poultry-houses and yards at cost of wire netting in fences, and some fine poultry for sale; also furniture in house.

All must be sold, and location abandoned on account of poor health. All honey, poultry, and eggs can be sold in city home market at good prices. Correspondence solicited.

J. W. Winder, Halfway House, N. Orleans, La.

Pierce FARM Engines.

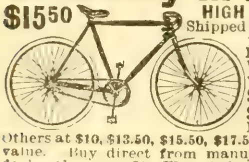


3-4 and 1 H. P. For separators, Churns, etc., Stationary to 20 H. P. **Pumping Engines** all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO.,
BOX 17. Racine, Wis.

In writing, mention Gleanings.

No Money in Advance!



$15.50 **HIGH GRADE BICYCLES** Shipped anywhere C. O. D., with privilege to examine. Latest styles for Men Women, Boys and Girls, well made and durable.

$60 "Oakwood" $24.50
$50 "Arlington" $22.00

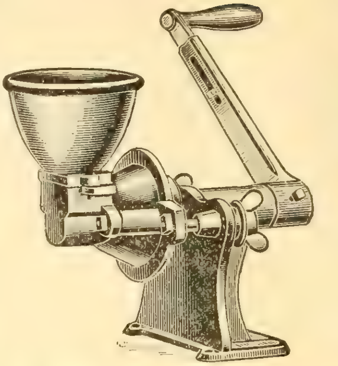
No better wheels made. Others at **$10, $13.50, $15.50, $17.50 & $19.50**; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

In writing, mention Gleanings.

Albino Queens.

If you want the most prolific queens, if you want the gentlest bees, if you want the best honey-gatherers you ever saw, try my Albinos. Warranted queens $1.00; untested, 75 cents.

J. D. GIVENS, Lisbon, Texas.

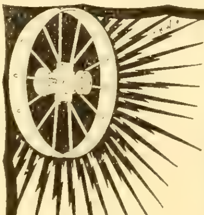


Do It Yourself.

Be your own Miller....

Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.** Address **The Frank Machinery Co., Buffalo, N. Y.**

In writing advertisers, mention Gleanings.



YOUR WAGON WHEELS

may need **new rings, new spokes or new tires.** These repairs have to be made every little while with wooden wheels. Stop all this expense for all time by buying a set of our

ELECTRIC Steel Wheels

They are made with **direct** or **staggered oval spokes, broad tires, any height,** and to fit **any wagon.** They can't rot, go to spokes and need no tire setting last indefinitely. There is only one thing better, and that is an

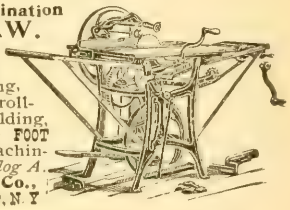
ELECTRIC HANDY WAGON.

Our free illustrated catalogue tells all about both and gives prices. Send for it.

ELECTRIC WHEEL CO. Box 95, Quincy, Ill.

In writing, mention Gleanings.

Union Combination SAW.



For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading Full line **FOOT** and **HAND POWER** machinery. *Send for Catalog A.*
Seneca Falls Mfg. Co.,
44 Water St., Seneca Falls, N. Y.

In writing, mention Gleanings

Italian Queens.

Pure-bred, five-banded Italian queens 75 cents each. Tested, $1.00 each.
Daniel Wurth,
Falmouth, Rush Co., Ind.

The Review a Home-made Journal.

THE REVIEW'S COMPOSITOR.

THE starting of the Review was a reckless undertaking. It was started without capital—except the good will of bee-keepers. Advertising, previous to its publication, brought in enough money to get out the first issue. After this there was, for a time, a race between receipts and expenditures. The latter came out ahead; and then a radical change was made. Type and materials for printing were bought, on time; one part of the home was given up for an office, and the editor commenced another rash undertaking—that of attempting, without previous experience, to set up the type and make up the forms of a magazine. The work was difficult, yet fascinating. Some help was hired at first, but the wife and children soon became imbued with the spirit of enterprise. They addressed the wrappers, folded and stitched the papers, and wrapped them up for mailing—and the life of the Review was saved. What seemed a misfortune, now allows the Review to be published at a good profit. One of the little girls who once wrapped up the papers is now a young lady, and sets all of the type; and the money that most publishers have to pay for rent and composition can be put into engravings, good paper, new type, and other improvements.

Send 10 cents for three late but different issues, and the 10 cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, : : : Flint, Michigan.

Queens by Return Mail.

Daughters of best imported Italian queen mothers; reared by Doolittle method: warranted purely mated to drones of imported stock from a different source—hence, a direct cross. Fourteen years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens 50 cts. each. Safe delivery and satisfaction in every case, or money refunded.

L. H. Robey, Worthington, W. Va.

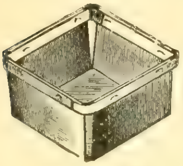
Queens by Return Mail

from a queen specialist; bred from swarming-cells. Every queen warranted to reach purchaser in good condition, and to produce well-marked 3 banded workers. Price 75 cts. each.

JAMES WOOD, North Dana, Mass.

Fruit Packages of All Kinds.

—ALSO—



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Order your supplies now before the busy season catches you. Price list free. Address

BERLIN FRUIT-BOX Co.,
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CHAS. ISRAEL & BRO.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.

Honey and Beeswax.

Liberal Advances made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

Eastern Bee-keepers.

If You are in Need of

APIARIAN SUPPLIES

send for our illustrated catalog describing every thing a bee-keeper uses. We keep the most popular goods, and sell them at prices that are right.

Italian Queens.

We own two apiaries, and our bees are "hustlers" for honey. "All yellow" Tested Italian queens, $1.00 each; three for $2.50.

I. J. STRINGHAM,
105 PARK PLACE, - - NEW YORK.

Bee * Supplies.

Root's Goods at Root's Prices.

POUDER'S HONEY-JARS,

and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

Italian Queens, 4 and 5 banded, not a hybrid in the yard. Untested, 75c. Tested, $1.00.

WALTER S. POUDER,
512 Massachusetts Ave., Indianapolis, Ind.

QUEENS, QUEENS, QUEENS.

By Return Mail.

Bred from imported mothers; dark leather-colored stock; extra honey-gatherers; also from light yellow and albino strains at very low prices. My stock is of the best. Forty years' experience warrants me in saying this.

Select tested	each,	$1.50.
Warranted purely mated	each,	.75.
Warranted purely mated	six,	4.00.
Warranted purely mated	dozen,	7.00.

Send for 40-page catalog of bees and queens; also a full line of bee-keepers' supplies, including The A. I. Root Co.'s goods at their prices.

W. W. CARY, = Lyonsville, Mass.

In writing, mention Gleanings.

QUEENS. Untested, 65c; two for $1.25. Warranted, 80c; two for $1.50. Tested, $1.25. Select tested, $2.00. My bees are bred for business, and work well on RED CLOVER. If you want honey try them. Satisfaction guaranteed. Send for circular.

C. M. HICKS,
Hicksville, Washington Co., Md.

Queens TO BE satisfactory must be born RIGHT. The more favorable the conditions, the better the queens are. I've been studying for ten years HOW to make the conditions most favorable. As a result, I sold MORE queens last May than I ever did in one month, and nearly as many this season as I ever sold in one year. I rear my cells by Doolittle's method, from best selected golden mothers. Poor cells and queens not used. One WARRANTED queen—select—75 cts.; six, $3.25; dozen, $6.00. Safe arrival and satisfaction GUARANTEED. Prompt shipment. Free circular. **J. B. CASE, Port Orange, Fla.**

In writing, mention Gleanings.

PORTER BEE-ESCAPES

for the

HIVE AND HONEY-HOUSE

have no equal. Save time, save hard work, save stings, save cappings to the honey. No practical bee-keeper can afford to get along without them.

Last a Lifetime.

Their great superiority over every thing else of the kind has driven all competitors from the field. For sale everywhere. Manufacturers' agents.

The A. I. Root Co., Medina, O.

Golden Queens.

50 cents each ;
$5 per dozen.

Geo. W. Cook,
Spring Hill, = Kansas.

In writing to advertisers, mention Gleanings.

Hybrid Queens for Sale.

I have hybrid and mismated queens for sale at 25 cts. each, or five for $1.00.
ALBERT HINES, Independence, Iowa.

IF YOU WANT BEES

that will just "roll" in the honey, and that are wonderful red-clover workers, also gentle to handle and exceedingly hardy, then try Moore's strain of Italians—the result of 20 years of careful breeding by selecting the finest honey-gathering stock each season from which to rear queens, and stocking my apiary with drones reared from other fine honey-gathering stock not akin. Send for circular, and see what my customers say. Warranted queens, 75c each; 6 for $4.00; 12 for $9.00. Select warranted, $1.00; 6 for $5.00; 12 for $9.00. Strong three-frame nucleus, with warranted queen, $4.00. Safe arrival and satisfaction guaranteed. Those who never dealt with me I refer to A. I. Root, who has purchased of me over 900 queens.

J. P. Moore, Lock box 1, Morgan, Pend. Co., Ky.

Golden Italian Queens.

Warranted purely mated; all queens by return mail; will run 1200 nuclei; queens reared by Doolittle's method; safe delivery and satisfaction guaranteed; have 11 years' experience, and know what good queens are. Queens 50c each; six for $2.75. **300 selected** queens, nice, **large, and yellow** all over, at 75c each; six for $4.00. My queens are prolific, and workers industrious as well as beautiful to look at. Hundreds of testimonials prove this. Special low price on queens in quantities. Address

H. G. Quirin, Parkertown, Erie Co., Ohio.

MONEY-ORDER OFFICE, BELLEVUE.

Root's Goods for California.

We have just received a large carload of sections, extractors, smokers, veils, etc., direct from the factory, and are prepared to supply bee-keepers with the same promptly. Do not send a long distance and pay high freights. Write for our prices.

M. R. MADARY, = Fresno, California.

Wants and Exchange.

WANTED.—For cash, No. 1 white honey in Danz. 4×5 plain sections. Write for particulars. Four sizes of Prize cartons for comb honey, and 66-page book, "Facts about Bees," for 6 cts. in stamps.
F. DANZENBAKER, Box 66, Washington, D. C.

WANTED.—Several thousand pounds of 1899 extracted clover honey. Will furnish cans.
I. J. STRINGHAM, 105 Park Place, N. Y.

WANTED.—To exchange a good farm seven miles from Schenectady, N. Y.; good location for bees; with or without apiary, for improved Florida property; store or house and lot in the vicinity of Orlando preferred. Address P. O. Box 27, Grooms, N. Y.

WANTED.—To exchange for offers, one 400-egg-size incubator and brooder. Reliable, hot water, good as new. CHAS. H. THIES, Steeleville, Ill.

WANTED.—To correspond with an active young man who has had some experience in bee-keeping, and is willing to work. A splendid opportunity for the right man. Address JUAN RAVELO,
Craycraft, Havana Custom House, Havana, Cuba.

WANTED.—To exchange my Common Sense nondrip shipping-cases, holding 18 1¾-inch wide, or 16 wider sections, put up in lots of 50, laid down at your station for 8 cts. each, in exchange for No. 1 white and fancy comb honey at right prices in any quantity.
B. WALKER, Evart, Mich.

WANTED.—To exchange a new foot-power saw for honey or bees. JOHN DE WATERS,
346 Upton Ave., Battle Creek, Mich.

WANTED.—To exchange for pure Italian queens or bees, one trio light Brahma fowls, one trio barred Plymouth Rocks, one dozen W. Leghorns, hens and cock. FERRIS PATTON, Newtown, Ohio.

Some Odd Points.

Who is the breeder? Who is the man that has developed this wonderful strain of bees that you are offering for sale? This is the question that comes to me very often. It is not in the spirit of trickery, nor from any hidden motive, that his name is withheld. It is simply from a business reason that will be apparent upon a moment's thought. If this man's name and address were given, most of the orders would go to him direct, and I should lose all of the money that I have paid for advertising. Try to be content, my friends, in knowing where you can get this superior stock, and some time I may be able to gratify your curiosity and allow you to bestow well-deserved honor upon this breeder. At present you can help him most by sending your orders to me.

Is there any foul brood near this breeder? This is a question that is frequently asked. Neither foul brood nor bee paralysis has ever been in that region of country.

How does he rear his queens? By the Doolittle method. Without doubt, this method produces the best queens that it is possible to rear—certainly the equal of those reared under the swarming impulse.

Am I making promises that will get me into trouble? A few of my friends fear that I am—that some unscrupulous persons may take advantage of me. I had thought of all this before making the promises; but I have enough faith in bee-keepers to believe that, if I help them to secure really superior stock, there will be no disposition to take advantage of me. If the stock isn't what I claim for it, then I *ought* to have trouble. But there will be no trouble, no arguments, no disputes; if a man begins to complain, he will simply be asked to return the queen and get his money back, and 50 cents besides. That will end the matter. One man writes me that this stock will have to be "away up in G" if it equals his. That is encouraging. It is another proof that there is a difference in stock, and that this man knows it. I do not claim that this stock is superior to any in the United States; but I honestly believe that it has no superior, and I *know* that it is way ahead of the general run of stock.

Is the price too high? A few think that $1.50 for an untested queen is a big price. I think not, considering the superiority of the stock and the conditions under which the queens are sold. I guarantee safe arrival, safe introduction (if instructions are followed), purity of mating, and *entire satisfaction*. Any time within two years, if a purchaser is dissatisfied, from *any* reason, he can return the queen and get his money back and 50 cts. besides.

If you are interested in this matter, and have not read my advertisements in the last four issues of Gleanings, turn back and read them, as they give particulars not given here.

I said that the price was $1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the REVIEW. Any one sending me $1.00 for the REVIEW for 1899 can have one queen for $1.00; that is, I will send one queen and the REVIEW for 1899 for only $2.00. Of course, this special offer is made for the sake of getting the REVIEW into the hands of those who are unacquainted with its merits.

W. Z. Hutchinson, = = Flint, Michigan.

Attention,

Michigan Bee-keepers!

We desire to inform you again that we can supply a full line of Root's goods at their prices. Having on hand a large stock, we can not only save you something in transportation charges, but give you quick delivery also.

Have you seen a description of the **HILTON CHAFF HIVE?** If not, send at once for a copy of our catalog. This hive is very popular in localities where the winter problem is a serious factor in bee-keeping. Be sure to send for our catalog, and let us figure on any goods you want at any time.

CANS AND HONEY-CASES.—Have you any for your crop of honey? To secure the best prices you must use the best packages. We furnish them.

Geo. E. Hilton, : : : Fremont, Mich.

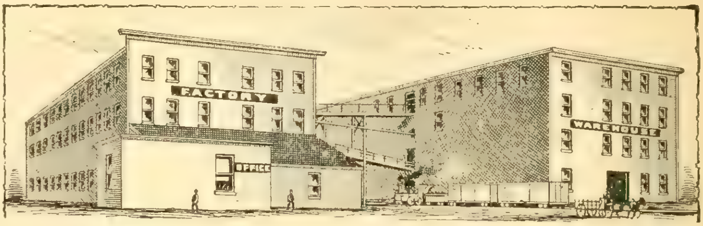
Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

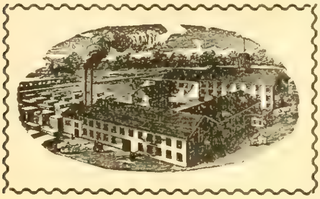
We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.



Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.



BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **Tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address E. KRETCHMER, Red Oak, Iowa.

In writing advertisers, please mention Gleanings.

The Luxuries of Yesterday are The Necessities of To-day.

Twenty years ago, comb foundation was a luxury. To-day it is a necessity. We sell the Weed Foundation—the best made. Root's sections to go with them are unparalleled. Send for catalog. If a dealer, get our wholesale list. Beeswax wanted.

M. H. HUNT & SON, Bell Branch, Wayne Co., Michigan.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

QUEENS. Untested, warranted purely mated, after July 1, 55 cts. each; 6 for $3.00. Select tested, $1.00 each; 6 for $5.00. Extra select breeding queens, $2 00 each. The very best of golden Italians. E. A. SEELEY, Bloomer, Ark.
P. O. M. O. Office, Lavaca, Ark.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Italian BEES AND QUEENS. Queens, $1 00. Bees by the lb., $1.00. Nuclei, two frames with queen, $2.00; one frame, $1.50; each additional frame, 50 cts. each. **Mrs. A. A. Simpson, Swarts, Pa.**

PRICES OF

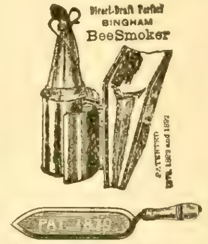
Bingham Perfect Bee-smokers and Honey-knives.

Smoke Engine (largest smoker made.)	4-inch	stove.	Doz.	$13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	"	9.00;	"	1.10
Conqueror	3-in.	"	"	6.50;	"	1.00
Large	2½-in.	"	"	5.00;	"	.90
Plain	2-in.	"	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	"	4.50;	"	.60
Honey-knife			"	6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.
January 27, 1897. Truly, W. H. Eagerty, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

COLUMBUS.—No honey moving now. No demand. Prices nominal.

COLUMBUS COMMISSION AND STORAGE CO.,
July 7. Columbus, Ohio.

CLEVELAND.—We quote our honey market as follows: Fancy white, 12½@13; No. 1 white, 11@12; fancy amber, 10; No. 1 amber, 8@9; fancy dark, 7@8; white extracted, 7.

A. B. WILLIAMS & CO.,
July 8. 80 82 Broadway, Cleveland, Ohio.

ALBANY.—Honey market dull. Very little doing. Prices about the same as last quoted. Beeswax quiet at 26@28.

MACDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
July 8. Albany, N. Y.

CHICAGO.—Not any of the new comb from other than the Southern States has appeared on our market. Most of that is amber to dark and hence sells at an average of eight to ten cents. New white that would grade choice to fancy would sell at 13; off grades of white, 11@12; extracted white, 7@7½; ambers, 6@7; dark, 5@6. Beeswax, 26@27.

R. A. BURNETT & CO.,
July 8. 163 S. Water St., Chicago, Ill.

MILWAUKEE.—This market is in good condition for shipments of honey, as the supply is quite limited. Old stocks are worked down to small compass, and a fair demand exists, especially for extracted, which is now wanted, and we advise shipments as soon as it may be produced from new crop. We can now quote fancy 1-lb. sections, 13@14; A No. 1, 12@13; No. 1, 12@12½; dark or amber, 10@11. Extracted, in barrels, kegs, or pails, white, 7@8; dark or amber, 6@6½. Beeswax, 25@26.

A. V. BISHOP & CO.,
July 8. Milwaukee, Wis.

NEW YORK.—Extracted in good demand (excepting buckwheat) at unchanged prices. Some demand for white comb at 11@12; amber, 9@10. No market for buckwheat. Beeswax dull at 25½@26½.

July 10. HILDRETH & SEGELKEN, New York.

FOR SALE.—Locust and clover comb honey, mostly in plain sections, at $10.00 and $12 50 per 100 lbs. Extracted, in 60-lb. cans, 8 cts. per lb.

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Las Animas, Bent Co., Colo.

The Review's Correspondents

N. E. FRANCE,
Platteville, Wisconsin.

THE success and usefulness of a periodical are largely dependent upon the men chosen by the editor as correspondents; hence it is worth while to notice that the correspondents of the Bee-keepers' Review are successful, practical men, the most of whom have numbered their colonies by the hundreds, and sent honey to market by the ton, and who can write, from experience, articles containing information of real benefit to honey-producers. Men who secure their bread and butter by producing honey to spread upon the bread and butter of others are the ones who know what to write to help those situated like themselves. The man whose apiary is in the back of his head, who sits in his office and reads books and papers, and then proceeds to reel off column after column of advice, gets little encouragement from the Review, as it prefers articles that are the result of bright brains and brown hands—written, perhaps, in the apiary, with fingers to which the pencil sticks—those that come with the odor of the apiary upon them. It is not so much how many pages there are in a paper, nor how often it comes, but what does it contain when it does come? It is by this standard that the Review wishes to be judged.

Send ten cents for three late but different issues, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, = Flint, Mich.

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References.—Western German Bank, Brighton German Bank Co., of Cincinnati, Ohio.

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The American Bee Journal has brought me in ten times its cost.—L. C. Salsbury.

I can't get along very well without the old American Bee Journal.

We like the American Bee Journal.—R. Chinn.

The American Bee Journal is crowded more and more with valuable information.—J. W. Mountjoy.

It was a great help to me last year in selling my honey crop.—J. I. Clarke.

The American Bee Journal is a great helper.—Mrs. M. M. Dunegan.

The Bee Journal is my guide, and will be.—J. P. Plunck.

The more I read it the better I like it.—R. H. Nortman.

We could fill this number of Gleanings with just such words of appreciation, but that would be useless. You are safe enough in sending $1.00 for the Bee Journal and the Warranted Golden Italian Queen. Such a bargain you don't see every day. Better get your order in quick. Address

GEO. W. YORK & CO., = 118 Michigan St., Chicago, Ill.

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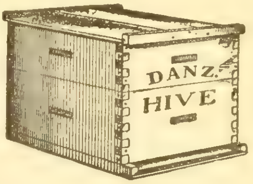

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GLEANINGS IN BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.
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STRAY STRAWS FROM DR C. C. MILLER

POLLEN in queen-cells I had been taught to believe a sure sign of hopeless queenlessness. I think I've seen a number of exceptions. June 26 I met a plain case. In one of my "barns" I found on one comb three enlarged cells containing pollen, with the queen laying, and all going on prosperously.

YOU DON'T SEEM entirely certain, Mr. Editor, whether I prefer trees to shade-boards for hives. Well, there's no doubt in my mind as to my preference—trees every time. I want the shade more for the benefit of the operator than for the benefit of the bees. [Yes, I was satisfied in my own mind; but I am glad you have put more emphasis on it.—ED.]

C. DAVENPORT gives a bright thing in *American Bee Journal*. Ordinary Mason fruit-jars are good for extracted honey, except that the honey oozes by the rubber band, making the outside surface of the can sticky. Well, dip (not soak or cook) the rubber band in boiling beeswax, and never a drop will ooze through. He is probably right in thinking that many a can of fruit would be saved from spoiling if the rubber rings were waxed.

AN UNUSUAL CASE was this: June 26 I found in a nucleus a young queen with her wings gnawed entirely away. Directly I found on the same comb a young queen with perfect wings. The two met and had a little conference, but did not seem very hostile. Next day both were present; the 28th I saw the winged one; 29th, the wingless one; July 3, the winged one. So both were there together at least three days, and whether the wingless one is still there I don't know.

EDITOR BERTRAND says foul-brood spores may be floating in the air. Others dispute this, I think, and I should be glad to believe that the distinguished Frenchman is wrong. He thinks that, in localities where the disease has been for some time, the bees become somewhat immune, or else the scourge loses some of its virulence. He believes in curing by naphthol beta or formic acid. [It is barely possible that foul-brood spores might float in the air, but I think it is very doubtful.—ED.]

PAGE 498 is a strong argument in favor of Doolittle cells. What is now wanted is to have added to the list of supplies a proper division-board that may be used in the regular hive. I suspect that having the cells between two combs with young larvæ is an important point. In hot weather wouldn't two compartments be as good as three? Is an 8-frame hive large enough for three compartments? [Yes, in hot weather two compartments would do, perhaps, as well as three; but having in any case the frame of cell-cups between two combs of young larvæ is quite important.—ED.]

PROF. S. J. HUNTER, who will be pleasantly remembered by bee keepers who attended the Omaha convention, has written "Alfalfa, Grasshoppers, Bees; their Relationship," a pamphlet published by the University of Kansas, that is of much interest. A careful counting of seeds showed that "the seed crop of alfalfa upon which bees worked was 66.6 per cent greater than the crops taken from alfalfa dependent upon other insects for pollination." Coming from a man who is plainly no bee-keeper, that statement has weight. [This is indeed a valuable point; and yet there are just a few, even among bee-keepers, who insist that bees have very little to do with the pollenization of plants.—ED.]

ONE FEELS a bit confused on reading, on page 516, a heading, "Bees for Fertilizing Cucumbers," and then the next item beginning, "I always fertilize my Irish potatoes with cotton seed, and have never seen a bug on them." Now, if potatoes can be fertilized with cotton seed without the intervention of bugs, could not cucumbers be fertilized with cotton seed without the intervention of bees? On the other hand, might it not be cheaper to have either fertilized by bugs or bees than to fertilize them by hand by means of cotton seed? [Dr. Miller seems not only to have become "rattled" himself, but he succeeds in rattling everybody else who tries to read his Straw and understand "what he is at." I suppose the sum and substance of his criticism is that the word *fertilizer* means one thing in speaking of flowers, but something else when we are talking about enriching the soil.—A. I. R.]

"Cogitator" says, in *American Bee Journal*, that if powdered sugar is almost always largely cornstarch, it has an important bearing on the provisioning of queens for journey. Worth thinking about. [We have used what is called confectioners' and powdered sugar; but the former contains starch, without a doubt, and it is liable to kill bees and queens in queen-cages provisioned with candy made with it. We have, during the last few years, ordered powdered sugar, and specified that it should contain absolutely no starch. Since we have discovered that confectioners' sugar contains starch, and have used nothing but the powdered sugar without the starch, we have had very much better success in sending queens long distances. With powdered-sugar candy we provision long-distance cages, sending them to Italy, and then have them returned with queens and bees. We have had several shipments by mail, of a dozen each, with scarcely the loss of a queen.—Ed.]

Color of honey. Prof. Hunter's pamphlet gives photographs of six samples of honey in test-tubes. Beginning with the lightest, they range in shade as follows: 1, alfalfa and melon bloom; 2, white clover; 3, alfalfa; 4, basswood; 5, sweet clover; 6, knotweed. I suppose there's no little variation in different localities as to the shades of honey. Certainly I have always considered alfalfa lighter than white clover, but here it is darker. And is basswood usually darker than white clover? [The color of extracted honey from the same source varies greatly in different localities, and varies in the same locality in different years. Alfalfa, as a rule, I think, is lighter in color than white clover; basswood is generally a little darker, but only slightly so. Sweet clover is a little darker, on account of having somewhat of a greenish tinge. Knotweed or smartweed ought to be classed as amber, although I have seen some samples that were very light-colored.—Ed.]

I don't see that Mr. Cutts gets a very satisfactory answer, p. 499. *Apis dorsata* may bring no ills to this country; but so long as there is a possibility that it *may*, it would be the part of wisdom to stick to your original opinion that none should be brought here until it was *known* they could be domesticated in their own country. Personally, I haven't the slightest fear of them; but if I lived in Alabama I'd just a little rather not have any in the woods. [Even if I lived in Alabama I should not have the slightest fear of *Apis dorsata* ever making any trouble. They gather so little honey, comparatively, that the amount they would appropriate would be only as a drop in the bucket compared with the quantity gathered by *Apis mellifica*—at least that is my impression from all the information I can gather. However, there is no immediate danger of *Apis dorsata* being imported into this country. Efforts are being made to domesticate them in their own country.—Ed.]

PICKINGS
FROM OUR NEIGHBOR'S FIELDS.
BY "STENOG."

This hot July is rather dry,
And nectar comes quite slow;
Sweet clover helps to fill the gap
In Northern O-hi-o.

* * *

AMERICAN BEE JOURNAL.

Prof. Cook believes the food of larvæ consists of digested pollen, and that very nearly the same food is fed by the nurse-bees to the queen and drones.

* * *

In his reply to Mr. Doolittle, Dr. Miller refers to a habit many have of speaking of a colony of bees as a "swarm." We always change the word here when the error is obvious. To call a colony of bees a *swarm* when they are working is like calling a thousand men at work a mob or a regiment.

* * *

In speaking of the advance in prices of hives, etc., Mr. York says that is all right if the price of honey corresponds. "But will it?" he asks. Some years ago Mr. Heddon took the ground that the price of honey could not be brought up, as it is not a staple article, and people do not care whether they have it or not. The sale of some things, like flour, sugar, tobacco, and liquors, will go on increasing in volume, as men will have them, regardless of cost, especially—

* * *

Illinois is to have a State Food Commissioner; and the internal evidence goes to show that the poisoners-general of that commonwealth are about to feel a sudden rise in the temperature. Nothing is more intimately connected with the public health and wealth than the manner in which such officers do their duty. If people have a right to know any thing, it is the nature of what they buy to eat. Congress itself should act in the matter in connection with the States.

* * *

Mr. C. P. Dadant writes a good article on remedies for stings. He seems to have but little faith in any of them, but thinks ammonia might help if used promptly. The trouble is, the poison is immediately taken up by the blood; and unless an alkaline substance can be brought to bear on the venom, an outward application will not avail. Mr. Dadant says the system becomes used to the poison, so that it eventually does but little harm. Grinn & Barrett seem to be the most successful doctors.

* * *

To get rid of ants, Prof. Cook says corrosive sublimate may be brushed along the floor where the ants enter, or strings may be dipped into it and laid along where the ants will have to cross them. The ants dislike this poison so much that they leave at once. Great care should be exercised in using so rank a poison where children are around. Prof. Cook says so many interesting things about ants that one can hardly help having a kindly feeling for them. The agricultural ant of Texas clears the ground, sows the seed, and raises its own grain.

* * *

Mr. York fears that Mr. Hutchinson and I would not favor a shorter spelling, even if it could all be done in a chunk. Noah Webster shortened our spelling very materially in his dictionary by leaving out one *l* in such words as *traveled*, *beveled*, *jeweled*, etc., and in many other ways. I have always favored that, and the reform is now practically accomplished. In a job office the new spelling would make endless trouble. Last winter we printed a job for a firm in Jamaica, and they said they wanted English spelling or none; so we had to spell it *harbour*, *labour*, etc. I feel sure our common spelling will not be modified during the next century.

* * *

Writing to Mr. York, Mr. Doolittle says: "I am fearfully driven with work now, and have sore eyes and a lame back to make work as uncomfortable as possible." I have always felt it was a pity that Mr. Doolittle should spend his useful life in doing his own work instead of hiring help. If he had secured help during the last twenty years, and had merely supervised his work, I am confident that a cipher would now be standing on the right side of every "$1" he can show. I do not see how any man can write as much for the press as he does without a stenographer, to say nothing of the great amount of work he does in his apiary and on his farm. I am speaking in general terms, of course, for perhaps Mr. D. knows his own business better than I do.

CANADIAN BEE JOURNAL.

It seems that the honey from eucalyptus, or that having a minty flavor, is not safe to send to England, as it is not liked there. The editor denies the minty flavor of the lot of honey referred to, and says it will be difficult for the Ontario bee-keepers to believe that there is mint in Ontario honey. By "mint," I suppose we are to understand a flavor suggestive of peppermint or spearmint. It seems to me mint has never been considered a detriment to honey on this side of the line.

* * *

The London *Daily Free Press* prints as a sober truth the report that pure honey of any particular kind can now be had by having "a large lot of ground, perhaps half an acre," planted, say, to white clover, and confining the bees to it with wire netting, putting the hives under it. In this way mixed honeys can be avoided. The editor well says: "Bee-keepers will smile at the above, and yet it is a sample of bee-literature all too common at the present day—not alone on bees and honey, but probably in every other line." However absurd the statement may be, it is by this time an established thing in the world's belief, and years of contradiction will not eradicate it.

AMERICAN BEE-KEEPER.

Mr. G. M. Doolittle leads off with an article on hiving swarms. He says that all the drumming on tin pans, blowing of horns, firing of guns, etc., has nothing to do with bees clustering. Nineteen swarms out of twenty will cluster in some place within reach of the apiarist soon after leaving their old home, whether any noise is made to settle them or not.

* * *

The editor, H. E. Hill, is in Stuart, Fla., where he had an apiary three years ago, near the Indian River narrows. He gives a fine view of his apiary. The hives seem right on the brink of a large body of water on which is a skiff. The picture is a tempting one, and makes one wish to go to Florida. On the St. Lucie River, Mr. Hill extracted, barreled, and shipped 3500 lbs. of palmetto honey from 65 colonies in two weeks. When that failed he moved south to Miami, in the sailboat, and then to Stuart, making a cruise of 300 miles. One morning they were just ready for breakfast when an overhanging limb swept the table bare, throwing the viands to Neptune.

GENERAL CORRESPONDENCE

GLEANINGS FROM GLEANINGS.

The Importance of Careful Accurate Observation.

BY A. J. WRIGHT.

Mr. W. M. Whitney, in an article on page 436, seems inclined to have a little fun over the idea of "dark rays." Well, that is all right. I like to see others enjoy life, even if it is sometimes at my expense; and then it often happens that one, after years of patient study, investigation, and experiment, is laughed at by another who has never spent a half-hour in study on the subject.

Mr. Whitney says: "Just shut your eyes, and think a moment. How much darkness tabby cat could get, even in the daytime, by shutting her eyes! Then where would poor mousie be? What's the use of expanding the pupil, even in the dark? Shut the eye; it'll be dark enough."

Now, friend Whitney, I have not anywhere contended that an animal could see by shutting its eyes, but that, in the element necessary to vision, the eye must be open. The pupil of the cat's eye in the full glare of daylight becomes but a dark line. Is the eye thus so nearly closed to enable the cat to see? No. It is for the purpose of shutting out those rays of light which in the nocturns are a hindrance to perfect vision.

This subject of how certain animals can see in the dark is very interesting, and opens up a wide field for investigation and experiment. I have spent many nights in field and forest, in the haunts of the owl, fox, etc., and I have become convinced that many animals can see perfectly *only* in total darkness. Carefully dissect and examine with microscope the eye of the owl, which sees best in the dark, from sclerotic coat and cornea to optic nerve, and then compare this with the eye of the common hen, which can scarcely see to walk straight after four o'clock on short days. Then compare these with the eye of the eagle or the hawk, which can look at the full blaze of the midsummer sun without blinking, and you will be convinced, I think, that the eye of the owl was designed for use in a different element than the eye of the eagle, hawk, and hen.

Mr. Whitney further says: "Why, bees ought to do their best honey-gathering during the darkest nights." I think not. I do not believe bees can see at long range in the night; and from some observations made I doubt if animals that see in the dark can distinguish colors. If this is so then the bees would be placed at a disadvantage in selecting blossoms from which to procure the nectar. Then, too, bees, like animated nature in general, must have a time for rest.

THE KING-BIRD A REAL PEST IN THE APIARY.

Mr. W. H. Seely, on page 436, says: "On page 354, A. J. Wright makes a common but most unjustifiable attack on the king-bird as an enemy and destroyer of honey-bees." I can readily forgive Mr. Seely, as, from his own confession, he knows but little about honey-bees, as he does not own one and never did; and it is equally plain that he knows but little about the king-bird, having taken his ideas on the subject from a report of the Secretary of Agriculture.

Now let me investigate this report. Not having the report, we must rely on Mr. Seely's statement. Six months were covered in collecting the stomachs of 171 *innocent* king-birds in nineteen States, Canada, and the District of Columbia. Only 14 stomachs contained any traces of the honey-bee, and a total of only *fifty* bees were found. Of these, 40 were drones and only 4 were workers. In many instances birds were shot near bee-hives, but no trace of bees was found in their stomachs; hence the conclusion that the king bird is not an enemy of the honey-bee, which every experienced apiarist knows to be wrong.

Well, let us lay this report and the specialists of the department on the shelf for a time, while we spend a few moments in the apiary with our shotgun. It is quite early in the morning, and no drones are flying, so we are quire sure that, if any bees are caught, it must be the workers. Here comes a king-bird right among the bees, and, there! he has caught one (for convenience' sake I assume this to be a male, Mr. Editor), and has retired to his perch on the barn roof. Shall we shoot? No, not yet. There he goes after another. So we wait until he has captured six, which is certainly enough to convict him. Getting within range, bang goes the gun, and tumbling to the earth comes this "innocent" sacrifice to the cause of science—how innocent we shall soon know. Picking up the bird, and finding him dead, we open the mouth, expecting to find the last bee captured still sticking in his throat; but, finding none, we open with a penknife the throat from mouth to first stomach. No bees! We open this stomach. Empty! We extend our explorations to the second stomach, and finally throughout the entire anatomy of the bird, and fail to find even a trace of bees. Ah! Mr. Seely is right. The report is right, and Wright is wrong. Just one moment, gentlemen. I should like to ask one question: What was that king-bird doing among the bees? Oh, yes! "Just looking for drones," you say. Certainly, that is plain enough; and, not finding any, he went without his breakfast—nice bird!

I am anxious to know if this nice little birdie does really catch drones; so we will be on hand about two o'clock, and see if we can find out. Well, here we are, with the air fairly roaring with lazy drones and busy workers, and here are two king-birds ready for business, one on the barn roof and the other in the air, moving further down the line. We will select the one on the roof. Now *he* starts in among the bees, and there can be no mistake—a capture is made; but whether a drone or a worker can not be determined. Soon another capture is apparently made, and the same thing is repeated for perhaps twenty minutes, during which time I should say that ten or more bees had been caught.

Our "artillery" being now brought to bear, this victim of man's thirst for knowledge lies dead at our feet. The knife is again used, with the result that we find in the first stomach one drone and nothing else. In the second stomach, fragments of insects, but nothing that could be classified. Here is a mystery, surely—a dozen or more bees caught, and only one to be found. The report referred to above is all right, and probably correct, so far as the number of bees found is concerned. In fact, Mr. Editor, you may shoot king-birds all day, and the chances are "16 to 1" that you won't find a worker, and rarely a drone, in the stomachs of the entire lot.

What, then, has become of the bees captured? A king-bird that has been boarding with me for a few days, and taking his meals from my apiary, has "given the whole business away." This bird seizes a worker, which he much prefers to a drone, by the abdomen, giving the bee a few smart raps against the perch. He then passes the body of the bee its entire length transversely between his upper and lower mandibles, by a peculiar motion of the latter. This is continued until the juices are thoroughly extracted, when he opens his mouth and *drops* the useless carcass to the ground. No wonder, then, that we failed to find workers in the stomach. But how about the drones? Well, when a drone is seized he is swallowed at once; and when several have been taken into the first stomach the bird sits quietly on the perch for half an hour, sometimes longer, when, by a few motions of the neck, the casting is brought up. This is about the size and shape of an ordinary pea, and consists of the hard indigestible portions of insects.

I do not believe that the king-bird ever intentionally swallows an insect having a sting. Drones are not often found in the stomach of the king-bird, for the reason that he prefers workers; and also for the reason that, while the casting is forming, he is not generally near the apiary, and therefore not so likely to be killed at a time when drones might be found in the stomach.

Bradford, N. Y.

[The foregoing, especially that part in relation to king-birds, illustrates how unscientific are some of the experiments and observations of even scientific men. That the king-bird is an enemy of the bee-keeper is clearly proven. I have seen king-birds catch bees on the wing repeatedly, and have watched them carefully, as I thought; but I always supposed, *of course*, that they swallowed them; but I could never understand why their throats were not badly stung in the operation. If Mr. Wright is correct (and it would seem that he is), the bees are rarely swallowed, but are captured simply to extract the honey and perhaps other juices of the abdomen, after which the carcass is cast aside. If I am not mistaken, Mr. Wright has been the first one to contribute these interesting facts in regard to king-birds and bees.

Some of his notions have been severely criticised by the *Review* critic; and even the editor of this journal has received a mild scoring for publishing such "nonsense;" but if Mr. Taylor will conduct his experiments as Mr. Wright has his, he may get his eyes opened to more "rays of light." I don't say that Mr. Wright's ideas on how nocturnal animals see are correct; but they should hardly be classed as so much "nonsense." One who is so close an observer as Mr. Wright should receive at least candid consideration.—Ed.]

PESTS IN THE APIARY; BEE-BIRDS AND TOADS.

This spring in my queen-rearing apiaries the bee-birds, much like a king-bird, gathered in numbers sufficient to eat about a third of the young queens; and about ten days ago I found that they had eaten all the drones, so as to stop the queen business for the time at least. I have advocated shooting; but some of the bee-men say they will be just as thick the next day. I do not believe that those I shot will eat any more queens or drones. From now on we shall have to visit our apiaries about twice a week in the evening, armed with a lantern and a well-sighted repeating club, double-barreled, too, as we have a kind of frog that goes to the hives and eats its fill of bees. It is nothing unusual to kill ten to fourteen in one evening. They are as large as the eastern bullfrog, of about the same color. They will soon reduce a strong colony if they are not killed or trapped.

This valley is well stocked with bees, and many of the apiaries are managed by specialists, some of whom have as many as 1000 colonies. We have two sources of honey—mesquite, a tree growing about the size of an apple-tree. It blooms about April 1 to May 10. The nectar is as clear as basswood, but better flavored, and equal to willow-herb. Our main crop is gathered from alfalfa, which is fine honey, a little darker in color. Some prefer it to any other honey by not having that strong sharp taste. Most of the bees kept here are very cross hybrids. I shall Italianize as fast as possible, if the birds will allow it. I will surely burn lots of powder if they do not. I hope every bee-keeper in this valley will kill all the bee-birds possible.

Phœnix, Ariz., June 18. Wm. Lossing.

* * *

A CASE OF BEE-FEVER.

Laying Tall Sections on Their Sides while on the Hives.

BY E. W. BROWN.

Continued.

When I sat down to write I intended to inform the fraternity of a great misfortune that is about to happen to us who depend upon our bees for our bread; but instead of doing so I have written things which I had no intention of telling—at least not until the events were in the dim past. It is much easier to tell about the foolish capers we cut up years ago, and keep quiet about what we did yesterday. However, if I may be excused for taking up so much space in a valuable journal, I will proceed to relate the sad news. Doolittle, you must listen to this.

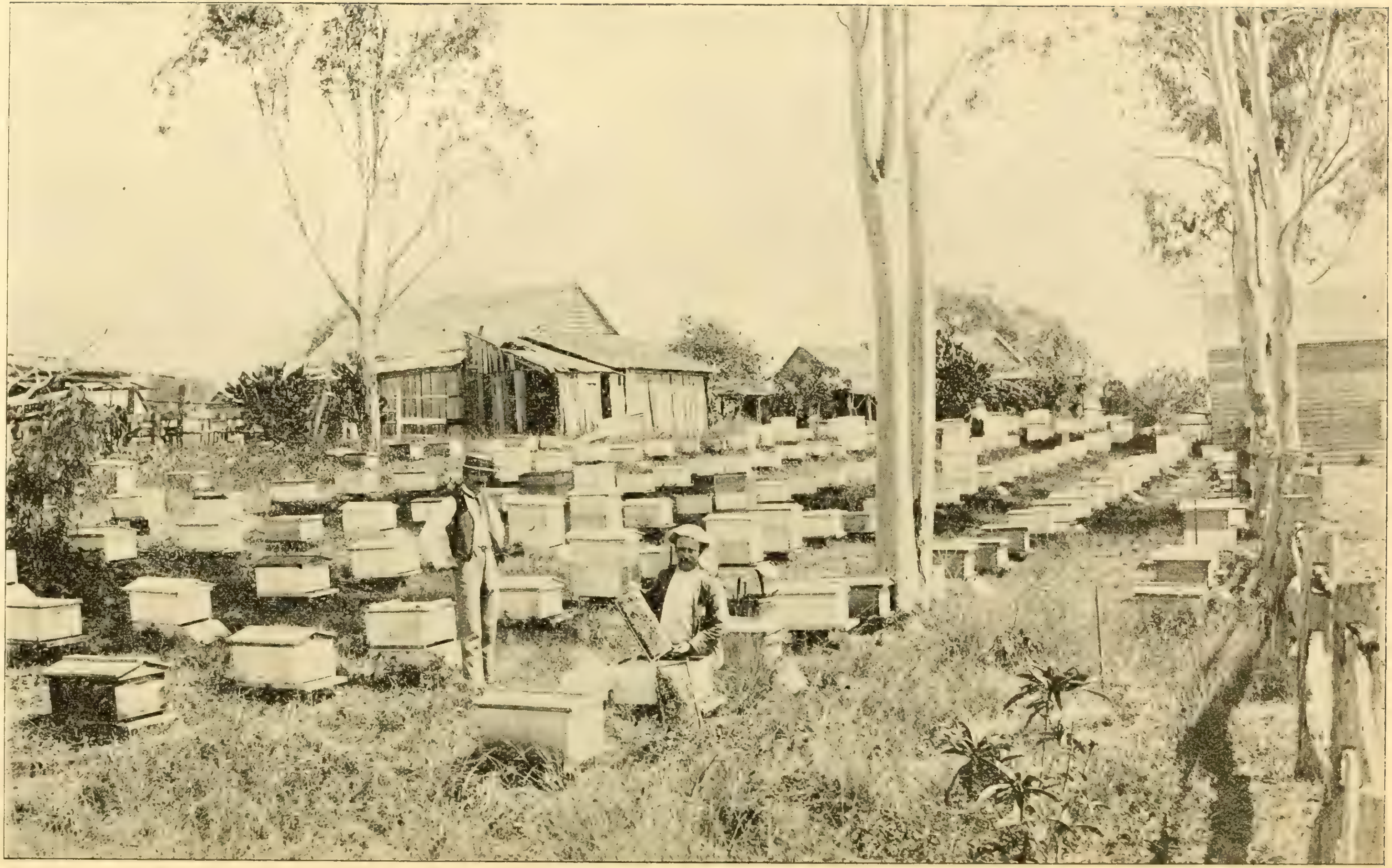
While in Buffalo one day this winter I went into a restaurant for my breakfast. While waiting for the waiter I was aware that two men were having what appeared to be a very interesting conversation across the table at which I was seated. My mind, however, was so deeply absorbed with visions of Aspinwall non-swarming dummies that I heard nothing they said until I thought I heard somebody say "king-bee."

"The spirits must be whispering to me," thought I, and my mental energy was soon tusseling with Brown's non-swarming bottom-board when again I heard a voice say "king-bee." It startled me so that my hair must have stood straight up, and I distinctly felt a cold shiver up and down my spine. There was no mistake about it this time; somebody was talking about bees.

Just then the waiter brought me my rations, and I proceeded to break my fast, and also, at the same time, to stretch my neck—yes, I had a rubber neck just then—to hear more plainly what I might learn about king-bees.

"I tell you," said the speaker, "he has got it right down to a science. He has it all figured out and proved, as plain as black and white can make it, how he can get tons and tons of honey right here in Buffalo in the winter time."

Oh, what an indescribable feeling came over me, and how faint-like I began to feel! "Oh!" said I to myself, "what *shall* I do



MEL BONUM APIARY, GOODNA, QUEENSLAND, AUSTRALIA, SAID TO BE THE LARGEST QUEEN-REARING ESTABLISHMENT IN THE SOUTHERN HEMISPHERE. SEE EDITORIALS.

for an honest living now? what *can* I do, times are so hard?" I thought of last winter when I went all over the city looking for work, and I was met everywhere with "There's no opening now. We have men laid off who will, of course, be put to work before hiring new men."

But the man was still talking. "He has interested capitalists, and they are now preparing to erect immense glass buildings, and will have this honey-plant growing all winter; and by keeping up the proper temperature the bees—why, they will think they are in Cuba. The greatest trouble will be to control the excitement of the bees and keep down excessive swarming, so he says. And in the summer they will also have an island (which they have already leased) planted with this seed, and they will have hundreds of hives in the center of the island."

"Isn't it wonderful what science and money can do?" remarked the other man.

Doolittle, what are we going to do about this monopoly business?

"Why, this expert," continued the talker, "has it down so fine that he can give scientific proof that there are just thirty-two bees in each hive that do nothing but feed the king-bee. He has sixty swarms right here in the city now, and he can handle them just as we would handle beans. It told all about the whole business in the newspaper. I have the paper at home, and will show it to you some time."

I saw that the conversation was about to end; and as they arose from the table I asked, "Who is this bee-man you speak of?"

"Oh! his name is Sleeper; he probably knows more about bees than all the bee-keepers in the country. You ought to read the piece in the paper I've got about him. He's an educated man, and has made a special study of bees."

I was foolish enough to try to argue with him, and I soon found out that it was useless. He seemed to be offended, and said, in answer to my points, "Oh, well! he proved it in plain black and white, and *he's* an expert; there's none of them better than *he* is."

Mr. Editor, don't you think you had better advise bee-keepers to sell out at any price before the value of bees drops to zero? You might tell them that you know a man who is foolish enough to give fifty cents per colony for 100 colonies delivered, express prepaid, payable when he has the money to spare.

Yes, sir; I'm going to stay right here and buck against these bee-capitalists with their glass buildings. Even the fear of financial death will not cure my bee-fever. I have just ordered 500 more of my special fences from the Root Co., and, unless too many colonies spring-dwindle, I shall need more. I used 600 last year, and I am just that crazy that I actually believe I can get much more surplus with much less swarming with my own section, which lies down like a brick on its edge. A. I. Root well says that we all have our notions. I am so notional that I will not use slats under my sections. What do I use to support them? Why, nothing—simply nothing; the pressure of the fences against the sections is ample to support them a bee-space above the brood-chamber. You see I use but three sections to a fence. The section stands 4 inches high, 5¾ long ($\frac{1}{32}$ scant), and 1¼ thick. This will hold 16 ounces of white clover, or 16½ ounces of buckwheat honey.

By the removal of the ⅜-inch slat, and by laying the section on its side, I make my surplus-arrangement so low and so close to the brood that the bees would just as soon go to work as to swarm. See? That is not all. The bees are divided into only three clusters to a fence, while in Root's Ideal super they are divided into five clusters on each slat. I tested ten Ideal supers last year, and I can truthfully say that I could get two of my own supers filled to one Ideal. It is but fair to say, however, that I used 40 sections in each ten-frame Ideal super, the sections being 1¼ thick. The eight-frame Ideal super gave better results. Just imagine how easy it must be to get bees *started* in low brick sections; then imagine how easy it must be to coax them up four inches higher when the proper time arrives to tier up.

These sections, which are broader than tall, are packed solid to the wood with honey, R. C. Aikin to the contrary notwithstanding. I believe our editor has confessed that tall sections, unless filled with foundation, are apt to be light in weight on account of the bees neglecting the outside cells next to the wood. I found this to be true.

I have tried one Danzy hive. I like the sections next to my own; but there is too much kindling-wood about the hive. As I did not fill the sections full of foundation they were light weight, and I could get but 10 cts. per section for them while my own brought 12½ cents each. I pack my sections in shipping-cases with glass three inches high. It is penny wisdom and pound folly to use a narrow strip of glass. Read that sentence twice, and do not forget it. If you use tall sections, use a higher glass.

Mr. S. T. Pettit, you are next in order. You have accomplished much, and you have generously given us the fruit of your labor. We thank you for what you have done, but why do you stop? Why not put "dividers" in the brood-chamber and encourage the maintenance of brood in the outside combs, to the exclusion of honey, at a time when we want all the honey above? Would not this also form a sort of ante-room for the comfort of the bees on rainy days and at night? and would it not have a tendency to keep the bees from getting that silly notion into their heads that they are too numerous to live in one hive? Let's not give up this swarming business as long as Doolittle doesn't know any better than to waste time on it. Doolittle admits that the Pettit divider is probably a good thing for the purpose for which it was intended. This is encouraging. Now, Mr. Pettit, see what you can accomplish with your dividers in the brood-chamber. May be you can get Mr. Doolittle thoroughly interested in these things. You have put dollars in my pocket; may be you will in his.

If the Root Co. have no machine that will bore a large number of holes at once, my advice to them is to equip themselves with one. Bee-fever patients are very kind and free with their advice. This is one of the symptoms of the disease. When W. Z. Hutchinson reads this he will smile clear across his face and half way down his back, and he will say, "We have all been there; he's there now."

Eden, N. Y., March 31.

[It is an old idea, supporting sections in the super by means of the separators or fences. But it is not entirely satisfactory on account of shrinking and swelling. It may do in some localities under some conditions.

Laying sections (oblong ones) on their sides is another old idea, but it has been abandoned because one long side of the box will be better filled than the other, and when the box is stood on end on the counter it does not begin to present as nice an appearance as one that was filled while on the hive in an upright position. Your boxes brought more money because they were larger—weighed more, and looked larger.—Ed.]

WEED FOUNDATION AND ITS SUPERIORITY.

Starters in Sections; the Difference in Chewing Quality between the Natural Comb and one that has been Built from Full Sheets of Extra-thin Foundation; Cold-blast Smokers, Again; the Defects of the Clark, and how a Real Cold Blast should be Made; Fuel.

BY C. DAVENPORT.

For some years past I have made most of my own foundation; but last season I sold my mill, and, after using up what I have of my own make on hand, I shall probably buy what I use in the future, though I may buy a Given press, as a party here has one that he has offered to sell me very cheaply, and I have some curiosity to try it; but I think, as many others do, that it hardly pays one, unless he runs a very large number of colonies, to make his own. It is true that there is a great difference between the price of foundation and wax; but probably few who have not tried it realize how much work and bother it is to rig up, properly purify the wax, and make it into foundation; and, though I have had considerable experience, what I made was inferior to that which factories fully equipped for the work turned out. When the new Weed foundation came out I was much interested in what was said about it, and sent for a few pounds in order to test it. Since then it is the only kind I have used for bottom starters, and it is far superior to my own make for this purpose. Many bottom starters of my own make used to topple or fall over when the bees got on them. It is very seldom that the Weed make does this, and, as claimed, the bees seem more willing to accept it. Was it you, Dr. Miller, who said that, when using bottom starters, in order to have the bees accept the bottom starter, and join it to the upper piece, it was necessary to have the section nearly full?

Last season I conducted an experiment in order to test the difference in value between full sheets and starters, and in this experiment I used about 1000 sections that had only small three-cornered starters at the top, and the bottom starters were about as narrow as could be fastened in with the Daisy machine, and I do not think there were half a dozen in which the bottom starter was not accepted, drawn out, and fastened to the upper one as soon as it was built down low enough. The flow was scant and irregular, too, which, I think, made the test more severe. I do not, though, put supers on until there is some prospect of the bees being able to store honey in them.

Now, Dr. Miller, I do not mean to insinuate that you do; but some one, I do not remember who, advised, or at least said he practiced, putting on supers as soon as the colonies were strong enough to occupy them, without regard to the flow. Such a practice would not answer here; for any foundation in supers might be torn down or smeared over with propolis if no honey were coming in An excessive amount of propolis and pollen is a disagreeable but prominent fact here at nearly all times of the season. I am not advocating the use of so small an amount of foundation; but I have a number of wealthy customers who want the natural comb. They are willing to pay the price, and on this account they get what they want as nearly as it is possible to have it, though I have some doubt whether many if any of them could tell the difference between a section of natural comb and one in which a full sheet of extra-thin foundation had been used.

I think there is no question that bottom starters are a great help in getting the comb more firmly fastened to the wood; and this not only insures greater safety in shipping, and when handling, and hauling to near-by towns; but sections of honey in which the combs are well fastened to the wood are, I believe, a great advantage in an indirect way, for much of the section honey retailed is put into a paper sack, or tied up in paper, and delivered to or carried home by the buyer, along with other supplies; and if the comb is well fastened it is not nearly as apt to become broken and mussed up before it reaches the table, and a section of nice honey that reaches the table in good condition makes about as inviting and handsome-looking a dish to most people as can be imagined; and if, for instance, there are persons present who notice and comment on the handsome appearance, as they are very apt to do, the hostess will afterward have a kindly feeling toward honey, and many of the company will make a point to have honey to set before their company, and so on.

Since the above was written I have read the footnote to my article on page 351; but there is no need of my sending a smoker; for if you put the fire-cup of a Corneil on a Clark bellows you will have about the kind I prefer. I get a tinner to make a cup nearly like the Corneil, except that it has a straight nozzle, and is made at the breech with a sliding door like the Clark. It is made with a detachable nozzle, which, when removed, leaves the perforated portion in front, as well as the air-tube, exposed, so they can be easily cleaned. I fasten such a cup on a Clark bellows, and it makes, in my opinion, a smoker far superior to any now made. The fire-cup to the Clark is too small; and, being larger at the breech, too much of a fire has to be started at first in order to keep it going. This soon consumes the fuel; and with a fire-cup made as the Clark is, even if of the same capacity, it will not hold fire nearly as well nor as long as a straight cup will.

THE COMPARATIVE DIFFERENCE IN SIZE BETWEEN A REGULAR EIGHT-FRAME HIVE AND A DRAPER BARN. SEE EDITORIALS.

But the kind of fuel I use may have much to do with the way I want a cold-blast smoker made. Other kinds of fuel might not give as good results in such a smoker. As I have before said, I use flax straw. After this has been exposed to the action of the weather over winter it burns readily; and when I want smoke, all I have to do is to put a twist of this in the smoker, touch a match to it, and it gives a good volume of smoke for from one to two hours without refilling.

Referring further to the same footnote, I think that, while the Dadants are in about the same latitude I am, there must nevertheless be considerable difference in the weather, for their bees had one or two flights the past winter. Here there was not a suitable day for the bees to fly, from about the middle of November until the fore part of April. Every colony in my immediate vicinity left outdoors perished; still, I know of none that were packed after the most approved methods. Call out your man Acklin, of St. Paul. I have heard that he practices outdoor wintering to some extent. It would be very interesting to me, at least, if others in this State would also report their success or failure in outdoor wintering, and in either case describe just how the bees were packed. While it hardly seems possible to me that bees could have lived here outdoors through the past winter and spring, if any have, and the method of protection that carried them through were known, it might be of much benefit to many; for the past winter was a most severe one—nothing like it here before in my time.

Southern Minnesota.

[I quite agree with you, and I doubt very much whether any connoisseur can tell the difference between the eating quality of comb honey built off from only a starter of foundation, and comb honey built from a full sheet of extra-thin; and speaking of the extra-thin, we have now facilities for turning it out running 18 feet to the pound, and it has pretty fair side walls too. Owing to the greater strength of the Weed foundation, I am rather of the opinion that such wax can be used to advantage. We are now prepared to furnish it in any quantity that may be called for.

We have made smokers on the plan you speak of; but for real pungent smoke — the kind that conquers — the hot-blast, to my notion, is ahead of them all. In fact, I have had such a poor opinion of the Clark that I have seriously questioned the wisdom of selling it. There is still quite a sale for it, but I suppose it is because it is the cheapest smoker that is sold.—Ed.]

BEE-PARALYSIS.

A Serious Enemy to the Bee-keepers of the South.

BY O. O. POPPLETON.

On p. 401 you tell of a case where bee-paralysis has seemingly started from a purchased queen. This is a very important matter—one of which the known facts are too few to admit of any explanation. It will only be by those of us who have had some experience taking counsel together that any thing of value can be learned.

Several years ago I exchanged Italian queens with a neighbor, raised several young queens from mine the same year I got her, and the following season nearly every colony which had one of those young queens developed the disease. I questioned my neighbor closely, and he told me that, so far as he knew, his apiary had been entirely free from the disease up to the time he let me have the queen.

Some five or six years ago I obtained several fine queens from one of the most noted queen-breeders in the North. The colonies to which these queens were given showed no signs of the disease; but almost every one of their daughters developed the disease.

Last fall I purchased about two dozen young queens from a well-known breeder, and this spring nearly all of the colonies to which they were given have been ruined by the disease, so far as this season's work is concerned.

Three or four years ago I got two queens from each of two breeders—one in the North, one in the South. The progeny of these four queens has been all right.

The character of the men from whom these have come is such that I have never had the first atom of an idea that any of them knowingly sent me diseased stock. There is some reason back of and deeper than that why the daughters of purchased queens have been in my case so much more liable to this disease than were others; but I can form no idea what that reason is.

This is a very important matter, and I hope that, some time, some capable scientist will take hold of it and tell us the real cause and nature of the disease; how it is propagated and how it can be prevented. I can cure it, but at the expense of any income from the colony for the season.

Five years ago the disease caused me a very heavy loss; but the season closed with all colonies healthy. There has been very little since then until this spring, when it has again been very bad. But little of the disease can now be seen in the apiary; but it has made a very decided cut in my honey crop.

Stuart, Fla., May 22.

[In spite of all that I have said in these columns about the seriousness of bee-paralysis to our Southern bee-keepers, there is a very large number, and I am sorry to say one or two queen-breeders, who seem to think that bee-paralysis is a trivial matter, and hardly worth noticing. It is true, it amounts to nothing in the North—at least I never heard of a case where the disease spread or caused any serious destruction of colonies. Mr. O. O. Poppleton is one of the most careful and conservative bee-keepers I know of; and when he writes as he does, our readers may rest assured that bee-paralysis in the South is something to be dreaded—much more so than foul brood; but if Mr. Poppleton has a method whereby he can cure it, he has something that bee-keepers have not heretofore known of. It will prove to be a real boon, and I hope he will tell our readers just how he stays the ravages of this disease. Heretofore we have regarded it as practically incurable; indeed, it has already driven two bee-keepers to my knowledge out of the business because they could not stop the ravages of the disease.—Ed.]

* * *

LARGE HIVES.

A few Interesting Figures Showing the Superiority of Large Hives for Winter and Brood-rearing.

BY J. N. HARRIS.

I have read with much interest the discussions in Gleanings in regard to large hives; but as the Dadants have so thoroughly discussed the large-hive idea I do not care to say any thing further in regard to it, but simply give in my report in regard to wintering, in favor of large hives.

I went into winter quarters with 241 colonies in three apiaries, all in single-wall hives. They were wintered on summer stands with no other protection than chaff in upper stories, and tight board fences about the yards. They were in four sizes of hives on L. frames.

37	colonies in	8-frame	hives, winter loss	8
16	" "	10-frame	" "	0
156	" "	12-frame	" "	9
32	" "	16-frame	" "	13

AVERAGE AMOUNT OF BROOD PER COLONY, APRIL 25.

8-frame hives	3	frames of brood.
10-frame "	...............3¾	" " "
12-frame "	5	" " "
16-frame "	...............2⅓	" " "

It will be seen by the figures that I had the best success wintering in twelve-frame hives, which is my favorite size.

The most of the eight frame and all of the ten-frame hives were in the yard where the bees wintered best. I have always had fair success wintering in the sixteen-frame hive until this last winter.

The previous winter I had 103 colonies all in large hives, and lost but one colony. Losses were very heavy in this section of the country during the past winter.

St. Louis, Mich., May 16.

[It would seem that the 16-frame hive was too much of a good thing. I suppose because it is too roomy; that is there is too much cubic capacity to keep warm. The figures showing the proportion of brood-rearing up to the 16 size are somewhat significant. It is facts like these that should have some weight.—Ed.]

* * *

LARGE HIVES IN CANADA.

Importance of Good Queens.

BY J. CANUCK.

Being a user and advocate of a large hive it is needless to say I have been much interested in the discussion going on between the Dadants, Doolittle, and others; and I was pleased in reading that article by A. N. Draper, in GLEANINGS for May 1, to see that you had consented to test the large hive side by side with the Langstroth. I suppose the hive question has been more discussed than almost any other question pertaining to bees, and is as far from being settled to the satisfaction of every one as it ever was. I believe, as you stated in GLEANINGS a short time ago, that the majority of our great honey-producers use a large brood-chamber; still it is a fact that nearly all the writers for the different bee-journals are advocates of a small hive. Perhaps the other fellows are too busy, or else think it is no use to say any thing in the face of so much opposition. Be that as it may, it is refreshing to see that there are some few who are not afraid to tell of the superiority of the large hive. Most prominent among these, of course, are the Dadants, who have so persistently championed the large hive that I suppose that, in the eyes of the small-hive user, they appear something like the man who said that he never knew there were so many stubborn men in the world until he had served as juror. He had been on fourteen different cases, and the other eleven had held out against him every time.

I suppose I should not speculate as to what the results of your test will be; but I can not help thinking (perhaps the wish is father to the thought) that you will get positive proof that the large hive is away head for the production of honey.

There is one thing I wish to suggest to you, Mr. Root; and that is, don't put colonies into the large hives with queens that have been bred in little bits of hives for generations past. Some may laugh at this; but I know from experience that there is a good deal in it. I become disgusted in reading articles by prominent queen breeders, stating that good queens should fill eight L. frames with brood before the main honey-flow starts. Why, Mr. Editor, at this date, May 9, I can show you lots of colonies in "barns" with nine and ten frames filled with brood from one end to the other (frames considerably larger than the Dadant-Quinby), and the hive boiling over with bees, and we have had a very backward spring—first pollen noticed Apr. 18, and fruit-bloom just beginning to open.

As you are aware, our honey-flow does not start for nearly a month, so you can see what, in my opinion, constitutes a good queen.

I have received several tested queens from one of the most noted breeders across the line, and not one of them was any good in my estimation. I have found that this breeder uses a very small hive, hence I draw my own conclusions as to why queens were not up to expectation. I trust you will give the "big fellows" a fair and thorough test; and it would be fine if we could have the satisfaction of having at least one editor on our side of the fence.

Hoodstown, Ont., Can.

[We are testing the Draper barns; but the season has been particularly unfavorable; and another thing, our eight-frame colonies could not, of course, begin to fill them. A little later, and we shall be able to render a report of them, I think.—ED.]

* * *

RAMBLE 171.

Palo Alto: Bees, Chickens, and Pigs; a Temperance Lesson.

BY RAMBLER.

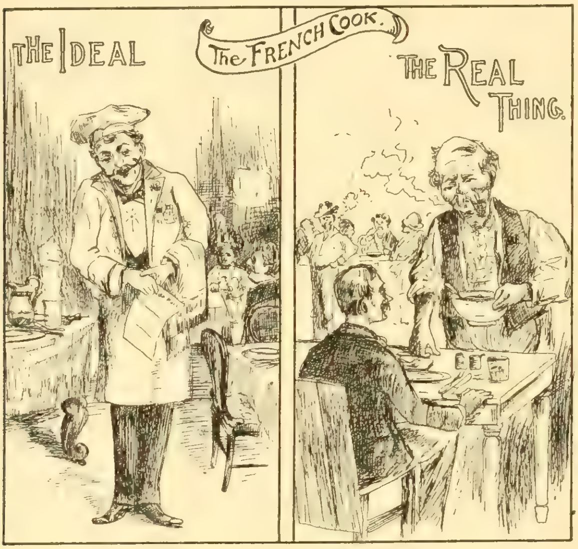
My next halt was at Palo Alto. The reason for the existence of this town is its nearness to the Stanford University; in fact, it exists upon the Stanford estate and upon the students of the University, for many of them have their lodgings here. Palo Alto is just the sort of town into which a temperance man loves to circulate. It is a town in which prohibition prohibits. The foundation of the town is laid upon the following corner-stone: "All persons who sell or allow intoxicants to be sold on their property forfeit said property." Every person who buys a town lot here receives a deed with the above provision. If he doesn't like the provision he can pass along to the next town. The result is a good class of people in the town, and the provision works like a charm. There are no saloons in Palo Alto. It is a clean town; and the faculty of the University, from President Jordan down, are pronounced temperance men.

I rambled into this delightful town, owing to the fact that one of my bee-keeping students was there. The editor of GLEANINGS will remember the bee-keepers' picnic that was held on the borders of Lake George, in New York, in 1890, and that the boy bee-keeper of the crowd was Brodie Higley. Well, here, after these many years, and after a three-years' course of instruction, he was ready to graduate, a full-fledged lawyer, at the time I found him. The bees he had learned to handle so successfully away back in York State had been something of a factor that had enabled him to finish his education.

The University is very progressive, but it has not made such progress as to establish an experiment apiary. I suggested to Brodie that the quadrangle around which the main buildings are located (the students call it the quad), with its smooth asphalt pavement and palm-trees, would be an excellent place to establish an apiary, and proposed to present the case to Pres. Jordan; but Brodie thought that would do no good, for the president always referred such matters to Mrs. Stanford; and as she was not interested in such small matters as bee culture she would be sure to sit down upon the proposition. Mrs. Stanford is a very large woman, and also very wealthy; and when she sits down upon a proposition that is the last of it. I do not like the idea of so much woman government; but as she upholds the temperance cause on her farm I have it not in my heart to find much fault.

If, some time in the future, the University should progress so far as to establish an apiary I hope they will not select a professor who will try to invent a new hive. For instance, a few years ago the bee-keepers of California were in hopes that a permanent experiment apiary had been established at the State University at Berkeley. The professor who had the matter in charge attended two of our State Association meetings; but he ruined his reputation as a practical bee-keeper, and the station as well, by inventing a new and impractical hive. The moral we draw from this is that a professor of an experiment station must not only understand the theory of bee-keeping but the practical side as well.

After a good portion of a day's chat with Brodie I gave his hand a farewell shake and wheeled on to San Jose and various other towns. This portion of California is not distinguished for the number and size of its apiaries. Now and then an enterprising and up-to-date fruit-grower has a small apiary near his orchard, as an aid to the fertilization of the blossoms. This fertilization is particularly beneficial to the almond-nut, which is largely grown here.


THE IDEAL
The FRENCH COOK.
THE REAL THING.

At Santa Clara my usual good luck in getting into a clean temperance house deserted me, and I found lodgment in a French hostelry with a saloon as the main feature; but I thought certainly that, with a French cook, I should have an up-to-date dinner, even if the surroundings did have the odor of beer. But here was a disappointment also. The rotund old fellow who officiated as cook and dispenser of beer spread his dishes upon the bare table with eggs, bacon, hard French bread, and black coffee. Frenchmen and dagoes gathered around, some in coats and some without; some on benches, some on boxes, and none on chairs. The feast was conducted in silence; but after it was over, there was a gathering in the saloon, and the corks of the beer-bottles began to pop, and the spirits of the guests began to rise. I was urged to take a social glass. In such cases and with such people a refusal is taken as an affront, and the importunity changes to a desire to enforce hospitality; therefore it is better to take something, and my ready resort is to take a cigar. Taking something seems to confer honor upon the donor, and it is seldom that they stand upon what you take. I do not smoke; but while staying with Mr. Levering, in the northern portion of the State, the near-by storekeeper would always offer a cigar on every trade of a dollar or more, and I would take the cigar and take it home to Mr. Levering, and felt amply repaid as I saw him derive solace from it. So it happens ever since, wherever I may be, when the opportunity comes I take a cigar, not for myself but for Mr. Levering.

During the struggle between the men and the beer-bottles I made my escape to a barber-shop. Here I found a congenial artist, and we straightway fell into conversation upon the hard times and the scarcity of money.

"Say, stranger," said he, "I have just had my eyes opened about the cause of hard times during this thanksgiving. We have three saloons here, and each one of them puts up turkeys for a raffle. The poor laboring men all rushed in and raffled away their money, some individuals as much as five dollars, and then getting no turkey; and (do you believe it?) the saloons in this little one-horse town cleared one hundred dollars each. I used to do just such things; but a few years ago I *found myself.* Talk about hard times! just banish the saloon and you would see the best times on record."

I fervently said, "Amen!"

The next morning when I looked into the saloon it was deserted, and things were in much confusion. I counted 38 corks of beer-bottles scattered here and there. I concluded that the Frenchmen should immediately organize a searching-party for the avowed purpose of finding themselves. So much for an unavoidable experience in a beer-den.

If we travel much in this country we are struck by the variety of people we meet. All nationalities under the sun are represented; and my noonday lunch is taken at a wayside station presided over by an Italian lady. While I was doing justice to her hot biscuits and honey she kept a close eye upon me, and finally relieved her mind by propounding the following inquiry:

"Is you ze ministar zata a go a by here to Vegas to preacha?"

"No, my dear madam, I am not guilty of any such thing. I am not the minister. I am only a poor bee-keeper."

"Oh! zata so I lika zat. We gotta a bee-rancha to it, am a in a tree."

"That must be fine," said I. "Could I see your bee-ranch in a tree?"

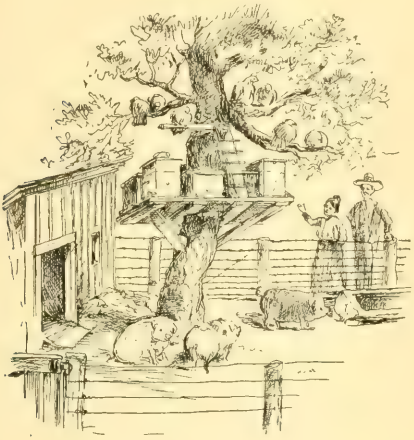
"Certainly," said she, leading the way to the rear of the house; and, sure enough, there were four hives mounted on a platform nailed to the tree, the tree in a hog-corral, and the branches above the hives served as a hen-roost. It was a unique combination of hogs, bees, and poultry.

"Why," said I, "that must be a profitable plan, and your hives do not suffer from a lack of refreshing showers."

"Ze—ze showers?" said she, inquiringly.

"Why, yes! the tops of your hives."

"Oh! z-e-e fertilisher—ha, ha!—we use ze-ze showers in ze gardena."



But I considered the dirty complexion of the hives, and thought if there was foul brood anywhere it would be there, and said, "I should think you would have foul brood in your apiary."

"Oh, yesa! we doa; ze fowls a brooda; ze herea;" and she then proceeded to show me all the old sitting hens there were on the place. Of course, the fowls were all brooding. I observed that she was not up to modern methods of management, though her apiary was the most novel in its arrangement of any I had met.

I gradually withdrew from this hospitable place, and pursued my journey. That evening I boarded the train again, and halted not till I placed my feet upon the streets of lovely Los Angeles, the place that seems like home to me.

TWO CENTS A POUND MORE FOR HONEY IN PLAIN SECTIONS.

I used a few of your plain sections and fences last year, and was well pleased with the results. I realized 2 cts. a pound more for the honey in plain sections than what I did for that in the beeway sections. I had 14 colonies in the spring, increased to 36, and took 1400 lbs. of surplus comb honey, and did not have one pound of dark honey the entire season. W. H. SWOAP.

DeYoung, Pa.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE

DOES THE LOSS OF THE STING CAUSE THE DEATH OF THE BEE?

Question.—Can a bee live and do work after it has stung a person, leaving its sting? Or does it die, as is generally believed by many persons who keep bees? Why I ask is this: A skunk was caught in a trap near a hive one warm summer night, and before I was up in the morning the bees from this hive stung the skunk to death, and its body was filled with stings to the number of thousands, it seemed to me, for there was scarcely a place but the stings and poison-sacs were a perfect mat. The hive was watched; but, so far as could be seen, there were no fewer bees in it than before, work continuing just the same, though the bees from this hive were very irritable for several days afterward.

Answer.—That a bee dies soon after losing its sting has been very confidently and repeatedly asserted. In fact, it has been considered by very many a "settled fact," and so has been reiterated without question. Up to within the past ten or fifteen years nearly all believed that a bee that had stung any one must surely die; for in leaving the sting, as the honey-bee nearly always does in stinging an animal, a part of the intestines was supposed to be left with the sting, poison-sac, etc., from which it was argued that the bee could not live. This seemed so reasonable that I formerly believed the idea which prevailed was true till one day, after a bee had stung me, leaving its sting, it came to attack me again and again, with all the fury and vengeance possible for a bee to work itself up to, getting in my hair, and singing away as only an angry bee can sing, which will make the cold chills run up and down the back of the most hardened bee-keeper. As this bee apparently had no thought of dying, it was caught and caged with two or three others, and kept a week or so to see what would become of the matter. At the end of the week it was apparently just as lively and healthy as any of the rest, when all the bees were set at liberty.

At another time, when putting up queens to send away, in catching the escort bees which were to go with the queen, one of them stung me on the end of my finger, leaving its sting, when it immediately ran into the cage. As I did not wish to remove all the bees and the queen to get it out, I let it go, soon after which the thought came to me that here would be a chance to test the theory of the death of the bee from losing its sting, as the queen was going into the remote parts of Texas, which journey would require seven or eight days' time. I accordingly wrote to the party to whom they were sent, telling him all about the matter, and asking him to take notice particularly when the queen arrived to see if there were any dead bees in the cage. In due time he replied that the queen arrived in splendid condition, and that there was not a dead bee in the cage.

Several times since then I have tried similar ways to see if such bees as had lost their stings were in any way inconvenienced thereby, and, so far as I can tell, by means of confining them so as to know that I have the same bee, I can see no difference between such bees and those which have their stings, as to length of life. Nature understands her work very much better than we do; and it now appears to me that it was so ordained that the sting, poison-sac, and contents, might be torn away from the bee, and yet it remain as perfect in every other way, save the defending of its home, as it ever was. If such is the case we can readily appreciate the carelessness manifested in rushing to an attack upon slight provocation, rather than ascribing so much to the patriotism of "home protection," resulting in "the death of hundreds and thousands" of their numbers, which has been the idea of the past. Whether bees having lost their sting gather honey or not, or whether they are allowed to live in the hive without their weapon of defense, is something which would be next to, if not quite, impossible to tell, for in this case we have no means of keeping track of an individual bee. As bees which are in any way imperfect are not tolerated in the hive, it might not be unreasonable to suppose that the perfect ones might drive off one which had lost its sting, as being incapable of defense, were the hive attacked; yet as there are so many thousands, perfect and ready for defense, to where one has lost its sting, I hardly think such would be the case. At any rate I have often seen bees which have either stung myself or into my clothing, so as to lose their stings, alight back on their combs without any molestation by the other bees, save some little irritation from the perfume of poison in the air, having watched such for several minutes. If they did not then try to evict them from the hive, when would it be done? That it was not the design of nature for the bee always to lose its sting when defending its hive, is manifest where bees repel robbers to the extent of hundreds, and at times often thousands, which the slaughtered ones attest, when in such cases not one bee in one thousand loses its sting, is self-evident. In such times of great slaughter, each bee keeps its sting, so that it can slaughter bee after bee till the attacking party is repelled or they lose their lives in the combat. Then at times of the balling of the queen, hundreds of bees are slain, yet not one of the dead ever has a sting fastened to it. At times they do lose their stings in other bees, but this is the exception rather than the rule.

[I have several times confined bees deprived of their stings in queen-cages, and have had them live two and three weeks—just about as long as they would have lived if they had had their stings. The notion that bees die shortly after losing their sting is all a myth.—ED.]

HEADS OF GRAIN FROM DIFFERENT FIELDS

FONDNESS OF BEES FOR VASELINE.

I noticed, the other day, a large number of bees working very busily on an old vaseline-keg, and they seemed as enthusiastic over it as if it had been a molasses-barrel. Can you explain the cause of it? and did you ever know of a similar case?

B. E. GOODENOUGH.

Barton Landing, Vt., May 4.

BAD RECORD FOR SMALL HIVES.

I would say all the good things you sent were received in due time. I am very sorry to say I am this year without a bee, it being my luck to use eight-frame hives; and my colonies being very strong the hives were unable to hold sufficient to feed my bees through winter so they starved to death. I will discard those hives and try again as soon I can get some more. WM. LEATHAM.

Armada, Mich., April 30.

HONEY-DEW OF INSECT ORIGIN.

Friend Root:—I would add my testimony to Prof. Cook's in regard to honey-dew. This morning I saw the bees gathering it from the leaves of the wild California walnut, and I feel quite sure that not one person in ten would notice the source of this honey-dew. It came from a small yellow aphis lying close along the mid-vein on the under side of the leaves. I have noticed honey-dew for the past twenty-five years, and have never failed to find the insect source. Now, if nine people should say to you, "We saw honey-dew on a walnut-tree this morning, near McIntyre's gate, and did not see any insects to produce it, so it must have come down from heaven," and I should come up and say, "I also saw the honey-dew, and here are the insects that produced it," which would you believe? To my mind the idea of obtaining honey or sugar from the air is absurd; and when a man testifies that he saw honey-dew without insects, it only proves that he is a poor observer.

Sespe, Cal., June 15. J. F. MCINTYRE.

[The fact of insect origin can not be doubted now. It's settled.—ED.]

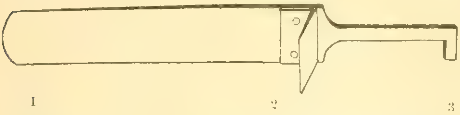
ODOR AS WELL AS COLOR; TESTIMONY OF ONE OF THE MOST EXTENSIVE BEE-KEEPERS.

I consider odor of clothes as great a consideration as color. I buy light odorless clothes, and have no trouble. Bad-smelling clothes are irritating to bees. I am now resting one of my teams of browns, and drive one gray and one brown, and let them pasture off the grass from among the bees. The gray pastures much longer than the brown without being stung; but switching the flies would be the only thing that would cause the bees to sting. The brown would be stung at a distance. I notice the above every day I am at this Piru apiary. It is a further proof that

color and odor are a consideration in working among bees. M. H. MENDLESON.
Ventura, Cal.

AN IDEAL HIVE-TOOL.

There have been several hive-tools described in the bee-journals, and none of them appears to be a success. I call mine an ideal tool, from its easy working and simplicity. I think the cut will be explanation enough, although a few points will help to make the construction of the tool more simple.



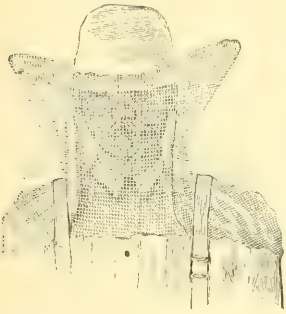
No. 1 is a round point with a long taper, run down until $\frac{1}{32}$ inch thick, for raising covers, prying up supers, and loosening frames. No. 2 is a thin piece of steel riveted to the blade, for removing burr-combs and propolis. This scraper should be 1 inch long. No. 3 is a square hook for lifting division-boards and frames. This hook should be ¼ inch long. The tool should be 10 or 11 inches long, 1¼ wide, 2 from the hook up to the scraper.

Arden, W. Va. J. H. ALLEN.

BEE-VEILS AND W. Z.

If you want to win my hearty thanks, make the No. 3 veils three inches longer. Until you do, mine must have a new tail fastened on, for there is little romance in having the veil come out of my collar, and result in a big neck. The better (?) grades of veils do not interest me. How men with long necks like "W. Z." get along with such short veils is more than I know. W. A. H. GILSTRAP.
Grayson, Cal.

[Three inches longer! Why, I do not see what you want of so much veil. If you put it on the way we do, by drawing the lower edges under the suspenders, as shown herewith, you will find the veil amply long. By measure I find they are 24 inches in length, which ought to make them reach from the hat down to the shoulders, and leave plenty of selvage to spare. Perhaps you wear an extra-broad-brimmed hat. If such be the case, the veil might be short; but if we add 3 inches to all our bee-veils, then some other fellows would be ready to give us their "hearty thanks" if we would make them shorter in the first place. But, say; if you will make, in your future orders, a distinct specification for 27 or 30 inches, or any length you may name, you can have the veils just to your liking.—ED.]



BEGINNERS' QUESTION-BOX BY E. R. ROOT

J. R., Iowa.—Hives in which bees have died should be closed up bee-tight; then, when wanted, swarms can be hived in them, or the individual combs be placed in other hives where the bees are in need of stores or more room.

J. R., Mich.—Bees build combs night and day. They work for nothing and board themselves, and then divide the "profits" at the end of the season; that is to say, if they have any profits to divide. But bees will not draw out foundation at certain seasons of the year. If it is not placed between two frames of brood or next to one frame of brood, or made to stand by itself when no honey is coming in, bees will not draw it out.

E. E. W., Mass.—Always leave a bee-space over the top of the frame. The best way we know of to find queens is to pull the frames out, one at a time, and examine both surfaces until she is found. If you have never seen a queen you had better get some old bee-keeper to point her out the first time. No amount of rapping on the hive will compel bees to stay in a location if they have been moved from some other portion of the apiary.

H. M. Z., Cal.—The acid we use for refining beeswax is sulphuric — the ordinary commercial article. It should be reduced in water from 50 to 500 times. If the wax is then boiled in this water, or heated by a steam-pipe, and then allowed to stand for a few hours, it will turn to a bright lemon yellow. The amount of acid to be used will have to be determined by experiment. If you reduce it to one in a hundred, and then keep reducing as long as you can get the clarifying effect, you will get the proper solution.

F. W., Wis. — Entrance-guards should be placed on the hive, and secured at the entrance with two nails. They are used, generally, either to confine in the hive any undesirable drones, for mating purposes, or to prevent the escape of a swarm by holding a queen in a hive. Entrance-guards are very often used instead of clipping, because they save the trouble of hunting up queens. We prefer clipping as a rule; but when we are a little crowded in our work, and do not wish to bother to hunt up a queen in a populous colony, we clap on a guard and let the hive go. If a swarm issues when the apiarist is present, all he has to do is to put an empty hive with frames of foundation on the old stand, removing the old hive to another location. The supers, if there are any on the old hive, should be placed on the new one. When the swarm returns it will go back into the new hive and begin work, and the old queen can be put with the swarm or not as may be preferred; but as a rule swarms should be supplied with queens — if not with an old one, with young ones. To prevent swarming, queen-cells should be destroyed in nine days; but this operation only serves to discourage swarming.

EDITORIAL

BY E.R. ROOT

BY some sort of oversight or misunderstanding, the quotations of A. V. Bishop & Co., of Milwaukee, Wis., have been omitted from the Honey Column. They appear again as usual, in this issue.

THERE is little to add to what I gave in our last issue regarding this season. It is later than last year by two or three weeks, and it is perhaps too early to get reports. I am safe in saying that clover and basswood has been a light crop over the country generally, and prices should rule much higher for such honey. Those who have honey should avail themselves of a free advertisement of one insertion in our Honey Column.

EDITOR HOLTERMANN'S LOSS.

IT is with much regret that I learn of the sudden death of the six-year-old son of R. F. Holtermann, editor of the *Canadian Bee Journal*. On the 12th of June the little fellow was playing about as usual, as robust and healthy as any child could be. His father, who was resting at noon in the hammock, asked the boy if he wished to go to a gospel meeting for children. He said he did. The boy disappeared around the house, and soon after a sharp cry was heard. The mother responded to the call, and found the boy in convulsions. Mr. Holtermann summoned a physician within ten minutes, and in a few minutes more he called another. "But all was over in about half an hour." Death was attributed to sunstroke as the result of being bareheaded and having the hair rather short. Mr. H. says it has always been his custom to go with the children to the barber's to see that the hair is not cut too short; but the last time he could not go. However, Mr. H. says "that is the human side of it." He recognizes in it God's hand. "It has been for some wise purpose." GLEANINGS extends its sincere sympathies. Personally we of Rootville have not been called on to go through such an affliction, but we feel, nevertheless, for those who have.

VERNON BURT, THE BEE-KEEPER WHO ALWAYS HAS A CROP OF HONEY; THE PLAIN-SECTION AND FENCE SYSTEM AS SEEN BY A. I. R.

YESTERDAY, July 14, I wished to try a new wheel, and Ernest told me to go over and get a report from Vernon Burt in regard to his honey crop. On reaching his home I found he was three miles further at an out-apiary. Before I reached this out-apiary my heart was rejoiced by seeing great fields of red clover; in fact, I found out afterward that in that particular locality many farmers make a business of raising clover seed. The fields were literally red with clover-blossoms, and you could see the red for a mile away. I found friend Burt had just been taking off honey. There was not a bit of robbing anywhere, not a bee buzzing around the honey-house, but they were actually bringing in loads of honey, and filling sections. When he exhibited a dozen or more of the handsomest sections it seemed to me I ever saw in my life, I began to think that these were some "extra selected;" but after I picked sections out of different cases at random, I uttered exclamations of surprise.

"Why, look here, old friend, how is this? These plain sections are just about as clean as when they came out of our sandpapering-machine; and there has been no scraping, because this just came from the hive."

"Well, Mr. Root, that is the great thing about those plain sections and fences. Ernest has got the thing rigged now so there is not a chance for the bees to touch the outside or edges of the section anywhere except a little place on the bottom, and that is so trifling, and so much out of sight, that I would not give a cent to have my sections scraped and sandpapered. In fact, I think they look nicer just as they come from the hive, without being fussed with."

Now, I suppose I ought to have been better posted; but this was indeed a revelation to me. Twenty or thirty years ago, when I was so full of enthusiasm about having eight sections of a size just fill a Langstroth frame, with just one pound of honey in each, I do not believe I ever dreamed of any thing as perfect and handsome as these I had just been looking at. The honey was not only beautifully capped, but it was attached to the top, bottom, and sides in such a way that there is scarcely a possibility of its being broken out with any sort of decent handling in shipment. Mr. Burt remarked, "Yes, that is another point. I never had any sections in my life so well filled out, and so perfectly attached to the section, as these built with those new fences. You tell Ernest to come out here and see what I have got to show him. And you may say to him that he need not waste any more time and breath in defending the plain sections. If you folks keep up the kind of workmanship you have given me this summer, this arrangement will talk for itself and make its own way clear through the whole bee keeping world."

Now, to tell the truth, I have several times felt there had been almost too much breath wasted in defense of the fences. A good thing does not need "boosting." Mr. Burt has already taken 72 just such sections from several of his strongest hives; and even during this poor season, when almost everybody is lamenting, and talking about "another failure," Mr. Burt is going to have a nice crop of honey, even if the bees should stop right where they are, and go no further. He has something like 150 colonies in his home apiary, and nearly as many in the out-apiary. He says he thinks he could get more honey during a poor season with 50 or 60 colonies in one place instead of three times that number; but in a very good season a large number would get plenty, and it is ever so much less work to care for a larger apiary all in one place.—A. I. R.

"A GOOD CATCH ;" TEN DOLLARS REWARD.

A VERY handsome half-tone, showing basswood in full bloom, makes up the beautiful frontispiece of the July *Review*. Mr. Hutchinson seems to have an eye for the useful and the beautiful.

By the way, we have been having some correspondence of late in regard to photography. Incidentally I happened to mention in one of my letters that it was very difficult to get a good human subject to appear natural while being photographed, as he is almost sure to look at the instrument, and give that self-conscious stare that spoils the *very soul* of the picture. In reply to this, Mr. H. says:

> I appreciate most fully your ideas on the subject. It is a pleasure to meet one who can catch the true spirit of a thing like this. How hard it is to break up that old habit of staring at the camera! Unless you fight for it you are sure to be beaten in this respect every time with the average subject.

There, now I might as well let the cat out of the bag. I have been wanting a frontispiece for the new edition of our A B C of Bee Culture, and would be willing to pay $10.00 to the first one sending a fine clear photo, *such as I want and can use*, showing a young lady of prepossessing appearance becomingly dressed, holding a swarm of bees on a limb she has just cut from a tree. She must not look at the camera while the picture is being taken—no, no! She must have about her an unconscious air of ease and grace that one of her sex has when she thinks there is no one to admire or flatter. Unconscious beauty in a human subject is the very soul of real art. For the second best picture I will pay $5.00. All entries to close by Aug. 15.

N. B.—For obvious reasons the name of the young lady whose figure will grace the frontispiece of the A B C will not be given below the picture, neither will it be known. All that will be put below the half-tone will be, "A Good Catch."

THE PHILADELPHIA CONVENTION.

The next meeting of the United States Beekeepers' Association will be held in Philadelphia, 5, 6, 7, during the Grand Army encampment in that city, for during this time very low railroad rates can be secured. While having the convention at these times runs the bee-keepers into big crowds, and sometimes compels them to submit to unpleasant quarters, yet experience has shown that it is only at such times that we are able to secure a good attendance ; for without some large attraction, when universally low rates can be secured, it is almost impossible to have a representative meeting of bee-keepers ; but at the meeting at Buffalo we had a practical demonstration of the fact that, when low rates can be secured, we can also have a good attendance, even if we do have to sleep on cot-beds and pillows of straw. Well, here is what the secretary, Dr. A. B. Mason, has to say about the whole matter :

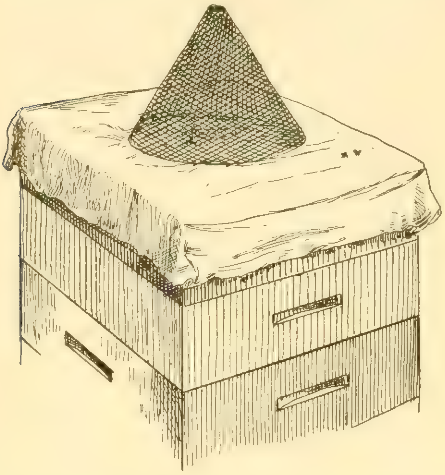
> STA. B, TOLEDO, OHIO, June 26, 1899.
>
> *Mr. Editor:*—I have been faithfully trying to get the railroad rates to the G. A. R. encampment at Philadelphia for the information of those bee-keepers who may wish to attend the convention of the United States Bee-keepers' Association on the 5th, 6th, and 7th of next September, and find that in the territory covered by the Central Passenger Association the rate will be one cent per mile each way, "with a minimum of $11 (except that the fare will not apply via Pittsburg, Pennsylvania road, and Washington), but via Harrisburg direct," but the $11 rate will be waived where the current first-class one-way fare is less. In such cases the fare will be one cent per mile each way in the Central Passenger Association territory added to the authorized one way fare for the round trip from the nearest Trunk Line gateway (or station). Tickets for sale Sept. 1 to 4, inclusive.
>
> The rate in the territory covered by the Trunk Line Association will be "one fare for the round trip with a minimum of $1.00, except that the fare from New York and Baltimore will be $3.00; from Washington, $4.00; from Newark, N. J., $2.85; from Elizabeth, N. J., $2.75; and proportionately from intermediate points. One fare to New York plus $3 00 from points west of Binghamton and Syracuse via New York, going and returning same route." Tickets to be sold, and good going, Sept. 2 to 5, inclusive.
>
> The Central Passenger Association territory includes that part of Canada lying south of a line running from Toronto nearly west to Lake Huron; the southern peninsula of Michigan, that part of Illinois lying east of a line running from East St. Louis to Chicago, including both of these cities; all of Indiana and Ohio; that portion of Pennsylvania lying west of the Allegheny River, and that part of New York lying west of a line from Salamanca to Buffalo.
>
> The remainder of the United States lying east of the Mississippi River, and south of the Ohio River, and those portions of Pennsylvania and New York not in the Central Passenger territory above described, and all of New England, are in the Trunk Line Association territory.
>
> In both the territories named above, "tickets will be good returning to Sept. 12, inclusive; except that by deposit of ticket with joint agent at Philadelphia, between Sept. 5 and 9, both dates inclusive, and on payment of a fee of 50 cents, return limit may be extended to Sept. 30, inclusive."
>
> Rates have not yet been fixed by the Southwestern Passenger Bureau and the Western Passenger Association, but both have promised to inform me as soon as announcement is made.
>
> By inquiring of the station agent, any one can readily learn the rate of fare.
>
> Side trips to Washington, Richmond, Norfolk, Gettysburg, Antietam, and other points of interest, will be provided for at about one fare for the round trip, or a cent and a half per mile for circuitous routes.
>
> In a letter just received from Mr. F. Hahman, secretary of the Philadelphia Bee-keepers' Association, he writes in substance :
>
> "If those expecting to attend the convention will write me we will find quarters for them ; those not notifying us will have to take their chances, as we can not engage rooms for anybody except those we are sure will come."
>
> Let me suggest that all such as desire entertainment write Mr. Hahman *at once*, or as soon as they have decided to attend the convention, so as to be sure and *reach him* by Aug. 15 or 20, and tell him what you wish provided. Mr. Hahman's address is Harrowgate Lane, Sta. F, Philadelphia, Pa.
>
> The Philadelphia Association proposes to find good lodging-places for all who notify Mr. Hahman, and breakfast at the lodging-places if possible ; and dinner and supper can be had at some of the numerous restaurants near the place of holding the convention, which will be in Franklin Institute, at 15 South 7th Street, between Market and Chestnut Streets.
>
> A. B. MASON, Secretary.

THE MILLER BEE-ESCAPE.

A FEW days ago I was looking over my collection of snap-shots that I took when I was visiting Dr. Miller last fall at his home in Marengo, Ill. Among them was a picture of the Miller bee-escape. Of this I have had an engraving made, and now present it herewith. It consists of an ordinary wire-cloth cone about 8 inches high, and perhaps eight inches in diameter at the bottom. At the edge is secured a cloth that will fit tightly over the hive or a pile of stacked-up supers.

Dr. Miller's usual method of emptying out supers, if I am correct, is to shake out as many bees as possible, then stack them up five or six feet high. Over the top is then placed one of these escapes, the cloth being wet so as to hold it securely down all around the hive-top, leaving the bees to escape by the cone.

This, I believe the doctor claims, works more rapidly than the Porter and escapes of a like character, because it admits of a large amount of light, owing to the eight-inch opening through the cloth. As the cloth is wet, it hugs the top edges and corners of the uppermost super, so as to render it practically bee-tight except through the cone. The escape is easily made, and now is just the season for one to give it a trial. For out apiary work where one wishes to take off the honey at one and the same trip it may be better than the Porter.



But methinks I'd rather go down the night before on a bicycle, slip on the Porter, and then go the next day and take off the supers without any shaking, smoking, or stacking up of supers.

THE DRAPER BARNS.

IT was Dr. Miller who first gave the name of "barn" to a ten-frame Langstroth hive having frames and hive-body 2 inches and an eighth deeper. One would imagine that an ordinary eight-frame Langstroth hive, having frames of regular depth, would look small in comparison with these barns; but the difference is not so great as one would imagine. I had two hives placed side by side—one of the aforesaid barns and one of the standard eight-frame Langstroth hives, each having a comb-honey super on top. A photo was taken, and the result is shown in half-tone on page 537. It will be apparent from the illustration that the difference is not nearly so great as one would imagine. The very word "barn," when applied to a hive, is suggestive of something of monstrous size.

Speaking of these barns calls to mind the fact that they will take any of the ten-frame standard Langstroth bottoms, covers, supers, sections, extracting-supers, and Langstroth bodies of standard depth. If there is any thing in having a large hive, the ten-frame Langstroth of extra depth would make really less confusion than a twelve-frame Langstroth of standard depth. The latter would require a different bottom-board, different cover, different super, and could not be used interchangeably with other hives in the yard.

Now, let it be understood that I am not advocating Draper barns, neither am I advocating twelve-frame Langstroth hives; but if there is call enough this season for the barns we will catalog them for next year.

A MODEL QUEEN-REARING APIARY; NEATNESS AND ORDER IMPORTANT REQUISITES FROM A FINANCIAL POINT OF VIEW.

ELSEWHERE in this issue, p 534, we present a very fine view of one of the largest if not the largest queen-rearing apiary in the southern hemisphere. It is operated by Mr. H. L. Jones, of Goodna, Queensland, Aus., a queen-breeder who has sent us a number of interesting and valuable articles on the subject of cell-building and queen-rearing.

This apiary contains about 300 colonies; and while it presents a remarkably neat and orderly appearance, its owner says it was not "got up for the occasion," as the photographer came along unexpectedly. It is very seldom that one sees an apiary of such trim neatness in its usual working order. On the other hand, it is not uncommon to see hives in the average yard more or less tipped sidewise, a little out of square with the points of the compass, weather-beaten, unpainted, besides quite an array of old brood-frames, sticks, old covers, old bottom-boards, and other things too numerous to mention. I do not mean to say that bee-keepers of this country are disorderly; but in the rush of the season, and when every thing is "hurrah boys!" and "any thing and every thing to get there quickly," we are liable to find things in not quite dress-parade style for a snap-shot photo.

I am proud to say, however, that our own queen-rearing apiary, just back of our factory buildings, will compare favorably with the Jones apiary shown on page 534; and for this state of things our thanks are due to Mr. Wardell, our apiarist, who has always been used to having every thing in order.

I believe that it was Mr. Hunt, junior, son of M. H Hunt, who, in the *Bee-keepers' Review*, said it cost no more to produce honey (or queens, for that matter) when every thing is kept neat and orderly than when the reverse is true, and I suspect he is right. It is a great aggravation to have tools and implements scattered all over the yard, to say nothing of the effect of the weather upon them.

At our basswood yard, over which I have direct personal supervision, the covers, bottom-boards, supers, etc., not in use, are stacked up in the center of the yard. Here, also, is a barrel of fuel, some matches, tools, etc.; and when I close up operations for the day I endeavor to have every thing back in its place, so when I return I can go immediately to work, knowing exactly where to find tools and hive parts.

NOTES OF TRAVEL
BY A. I. ROOT.

SOMETHING ABOUT GOOD ROADS AS WELL AS STRAWBERRIES.

The good people in Xenia, Greene Co., O., whom I visited just about a year ago, wanted me to be with them at their annual strawberry convention again this year; so I started out on my wheel on the morning of Decoration day, May 30. They were commencing to celebrate at Medina in the morning before I left; and I found them celebrating, and was obliged to mix in with the throng more or less, both at Upper Sandusky, Wyandot Co., O., which I passed through on my wheel, and at Marion, O. As there had been recent rains, making the roads almost impassible except where there were stone or graveled pikes, I took the train until I was near one of the pikes in Wyandot Co. After getting off at Tymochtee Station I found I was but six miles from where a graveled pike starts; and going over that six miles tired me more than riding thirty or forty miles afterward. It is a little singular that the western part of our State should have these beautiful stone and graveled roads, while in the northeast part such a road is almost unknown. If horses could talk as wheelmen do, no doubt we should have heard pitiful appeals for good roads long ago; and, oh the difference it made when I once struck a hard smooth stone road! Why, it required no effort at all to fly just like the wind; and in many places the road was so level and smooth there was scarcely a sound or a vibration. The beveled gear made a little bit of whiz at every revolution, and the fine particles of stone made a very little gritting sound as the tires passed over them; and, by the by, I think it must be true that a cinder path or a smooth graveled road is really easier to ride on than an asphalt pavement. Yet I can not understand why this should be so. On the asphalt there seems to be a little bit of sticking of the rubber to the smooth surface; but where there is just a little bit of sandy grit, the tire seems to be "loose," if that is the proper expression. It almost flies over the road without really making close contact.

In getting the requisite grade the road is banked up perhaps three feet, on an average, higher than the bottom of the ditches on each side. Through the influence of heavy rains and the traffic of wheels these roads become hard and smooth. The dirt sides become heavily sodded, and the freezing and thawing of winter, and the heavy rains and freshets of summer, seem to make scarcely an impression on them. I suppose a good deal is owing, of course, to the material used and to the skill with which the road is put together, especially on the surface, and finally the care with which little cavities are mended before there can be time for any water at all to stand in even the shallowest puddle on the surface of the road. I began to wonder, just before I reached Upper Sandusky, if the soil was not naturally better fitted for road-making than in Medina Co.; but between Upper Sandusky and Marion there is a piece of about a mile that, for some reason or other, has never been piked and graveled; and this mile — why, I actually had to get off and go on foot. The clay soil was cut up in such deep ruts that it was not possible to ride a wheel at all. That one mile used up my strength, besides taking lots of time, more than riding ten miles on a good road. Now, what is true of riding a wheel is more or less true of getting over the country with a horse and buggy. The horse is used up, the vehicles yanked to pieces, and time wasted — how many times a day, do you suppose? I have sometimes counted the vehicles that pass our home in a limited time. Very often in good weather a dozen teams are in sight at once, and there must be toward a thousand that go over the road both ways in the course of a day. Suppose each one of these thousand rigs suffers from all the losses I have mentioned, during just one day in the year, how much could the great world at large afford to pay for good roads?

After getting my supper at Marion I began to inquire a little about bee-keepers. I was told there was one, named G. B. Smeltzer, at Smeltzer's Corners, two miles out of the city. These friends were a good deal surprised and greatly delighted to find A. I. Root with his wheel actually standing before them. Friend Smeltzer, like most other bee-keepers, is interested in gardening. He showed me some of the most luxuriant plum-trees actually bending under their loads of fruit, and the fruit only half grown at that. Every plum seemed perfect — not a curculio sting. The only reason he could give was that there were not curculios enough to go round. We looked over the trees by the light of the lantern, and both of us decided that it was out of the question to think of propping up the limbs, for each little branch would need a prop. Picking off the green plums until the tree could stand the load of those remaining, seemed to be the only remedy. Now, bee-keepers usually have not only a nice garden, fruit-trees, and things of that sort, but the most of them are skillful mechanics. A great institution, called the Huber Manufacturing Co., in Dayton, had discovered the mechanical skill of my good friend Smeltzer, and had offered him enough to come and work in their factory during their great rush, so he was rather neglecting his bees and other things at home.

Next morning my trip was over a road not a bit behind the one of the day before, and on my way to Marysville I passed right along the banks of the beautiful Scioto River, passing through Prospect. Once or twice I was discommoded where they were putting on new gravel to repair the pike; but that was not to be compared with getting through mud roads that had been cut up while the ground was soft, and had afterward dried.

A thunder-shower obliged me to seek shelter just before reaching the pretty city of Marysville. But that did not hurt their kind of roads at all; in fact, I was on my wheel again almost before the drops had ceased falling. You see my chainless Columbia is just right for that kind of work. During the afternoon I was hindered so many times by rain that I finally waited for a train at the town of Irwin, between Marysville and Springfield.

The gathering of bee-keepers and strawberry-growers was at the same beautiful place in a grove surrounding a schoolhouse. The friends of the year before were present, and we were also honored by the presence of Mr. Nick Ohmer himself, and his good wife; and last, but not least, his brother, J. P. Ohmer, was on hand. The latter brought a Nick Ohmer strawberry-plant growing in a tub. I thought I had seen some gigantic specimens of Nick Ohmer strawberries and fruit on our own place; but that plant in the tub "broke the record," in foliage, size of leaf, and size of fruit. Three or four great stems of fruit, almost as large as peaches, reclined on the edges of the tub, and made a very appropriate object-lesson in letting people know the possibilities of strawberry-growing. A quart of berries stood beside the plant, showing twelve berries making a heaping boxful. Some of you will no doubt recall to mind the fact that J. P. Ohmer is the man who grows strawberries successfully through the sides of a barrel. He told us that, although the barrel culture was a success, the average person would probably be unwilling to take the necessary pains to make it a success. I was very anxious indeed to accept his kind invitation to call at his place and see his strawberry-barrels; but my time was so limited I was obliged to forego that pleasure.

OUR HOMES,
BY A. I. ROOT.

Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for those that love him.—I. Cor. 2:9.

No good thing will he withhold from them that walk uprightly.—Psalm 84:11.

Until recently I have always rather supposed that the first of my two texts referred to the home in heaven, after this life is past, and no doubt this is true; but an experience of the few days past has made me think that it may also refer to our lives here on earth—to a life that is in full accord and harmony with the plans of the great Father above. As the experience I allude to comes interwoven in a recent wheelride, I think I will give you the story in detail, even if the whole does not refer directly to our texts. In this way it will be more connected.

About 42 years ago, when I was a boy in my teens, I traveled over a portion of the northwestern part of the State of Ohio called the Black Swamp at that time; and almost every summer for several years past I have declared I was going over the ground I passed in that boyhood trip, and see what changes forty years or more had wrought. Along the last of June, when the strawberry season was over, I told Mrs. Root that, when we had a good strong east wind, she might expect me to start off very suddenly on this trip. Monday morning, the 26th, was bright and cool, and there was quite a strong wind from the northeast. Toward noon it began to blow sufficiently to send a wheelman at pretty good speed, and I expected to start right after dinner. But copy for the journal had to be looked after, work assigned to the different men and boys in my department, and it was after two o'clock before I was ready. It came so near supper time I told Mr. Root I should like a nice piece of beefsteak to sort o' back me up for my long ride. After eating the steak I remembered some other things that had to be seen to, and it was just three o'clock when I got on my wheel.

By the way, during the hot weather of late my strength has been somewhat oozing out, and it was hard work to get up either strength or enthusiasm. I think it was on the afternoon of that same day that I thought of praying for physical strength just as I did at Yellowstone Park, and I went off by myself and asked for just that one thing — physical strength if it was the Father's pleasure to give it. The prayer was answered, for I think I never rode twenty miles any easier than I did that afternoon, reaching Wellington just about five. About this time I was ready for another steak, and then I was off for friend Boardman's, at East Townsend, Huron Co., about 20 miles further. I might have made it very easily had not darkness and sandy roads come in both together; therefore it was after nine o'clock when I heard the welcome roar of his 200 or more hives of bees. God has not seen fit to bless friend Boardman's home by giving him a family of children; so when I came up on the porch and ran against a baby-carriage, it was one of my first pleasant surprises; but in talking about bees and other things during the evening I rather forgot about the baby-carriage until the next morning, when I was up and looking over friend Boardman's beautiful grounds among the hives, various kinds of fruit trees, his poultry-yards, etc.

As I stood out near the well, a baby face peered around the corner of the doorway, and then dodged back. Pretty soon I caught a glimpse of it again; and after a little effort to scrape up acquaintance the little one and I were good friends. I had been greatly enjoying walking around the pretty home, and that innocent little face capped the climax. I felt more intensely than I had ever before, perhaps, that no home is quite complete—at least no neighborhood is just what it ought to be—without one or more baby faces and childish prattle. A mother had died in their place, leaving this helpless infant; and Mr. and Mrs. Boardman had taken it into their home. At breakfast, the little one had a place right beside me. Although scarcely a year and a half old, she sat by herself, fed herself for the most part, listened to and smiled at our talk on gardening, bees, poultry, etc., and seemed to be happy and contented, even though she had no memory of her own mother. Mrs. Boardman remarked, "Mr. Root, our baby never cries before she goes to sleep, and never cries when she wakes up. She is always quiet, happy, and smiling, just as you see her now." It really touched my heart to look at the little one. She almost seemed to realize that she was to a certain extent to care for her own little self, a motherless baby. The very thought seems to appeal to the best instincts of humanity. Who is there who would not share his last crust with such a one?

Friend Boardman was not getting any honey the morning I left, or none to speak of; but he has two or more strings to his bow, and so he has recently introduced some very pretty and efficient poultry-houses. Every thing is as clean and neat about the poultry as it is about the bee-hives; and if the bees are not bringing in honey the poultry are bringing in eggs. In my boyhood days poultry-keeping commended itself to me inasmuch as you do not have to wait very long for some income from your investment. If managed properly the poultry should produce something to sell, not only every day in the year, but the very *first* day the plant is started. With the aid of the poultry-droppings friend B. has a piece of ground of rare fertility, and he had a crop of Giant Gibraltar onions that promised great things.

I had been told there is a beautiful cinder path for wheelmen, between Norwalk and Bellevue. I got on this wheel-path in the cool of the morning. It is, perhaps, from two to three feet wide. The surface is hard and smooth, but there are just enough very fine cinders to make a little bit of rustle as the wheel flies over them. A great part of this path is under beautiful shade-trees, trimmed just high enough so as not to hit one's head; then pretty dooryards in front of tidy homes come right up to the wheel-path. In the suburbs of the towns, beautiful lawns and flowers make every thing look lovely. A little out of Norwalk the path goes down on a curve opening up a glimpse of a beautiful river, and then speeds up and down, along the river-bank. The cinder path is so hard and firm and *safe* that you can go down one hill at lightning speed, and your wheel courses around graceful curves, down one hill and up the other. My first real thrill of happiness came when I passed a pretty home with a great luxuriant clematis partly covering the porch. There were hundreds of blossoms spreading their petals like butterfly wings, up to the morning sun; and then the tint—a brilliant purplish blue—that seemed to be almost *too* beautiful to be a thing of this world. I have told you before that I am partially color-blind; that is, I can not see red fruit amid green leaves a certain distance off, as other people do; but thank God I am *not* blind to the beautiful *tints* of the floral world. I have all my life admired a certain shade of clematis blossoms; but the one I saw that morning was really startling in its glorious beauty. I tried to think of words that would express what I beheld. *Entrancing loveliness* comes the nearest to it of any thing I could think of. Once before in Bermuda, when a glimpse of the immense mass of bougainevillea, almost covering a residence, broke on my view, I experienced something like what I felt when I saw this clematis. It really seemed as if the plant nodded and smiled as it noticed my thrill of pleasure. I do not like the word "intoxication," but I might say that, for a minute, it seemed as if I was intoxicated with its beauty. Thank God, there is nothing wrong in *this* kind of intoxication. Then another thought came to me: That clematis and that home are not *mine*; but I am enjoying them just as much as if they were. It is God's gift to humanity, in response to careful painstaking and toil. The owner, if he should see this, would not feel a bit hurt to think I shared this pleasure with him, even though it cost *me* nothing. I remember hearing about some one whom people called crazy because he said he owned *every* thing. He explained this by remarking that all things belong to God, and what was God's was his, and that, although these beautiful things in this world were not especially his property, or the result of his toil, yet he enjoyed them fully as much as the real owner—perhaps far more than many of the millionaire owners. This thought came home to me.

A little further along some humanitarian had planted cherry-trees along the road. These were bending with loads of fruit. I saw that other travelers had been helping themselves, and so I helped myself, and thanked God for the luscious fruit. After I had eaten as many as anybody ought to eat, I noticed over the fence the most beautiful tree of cherries I ever saw in my life. They were of a peculiar mottled red, or purple, that struck me as being the most fascinating color for fruit I had ever seen. No colored plate in any nurseryman's catalog ever produced any thing so beautiful as this tree loaded with gorgeous bright fruit. It thrilled me very much as did the clematis. There was, of course, a longing to taste and see whether it was really equal to what imagination pictured. The owner's house was quite a little piece away, and there did not seem to be anybody at home or I would have gone and begged the privilege of purchasing a few of those luscious cherries. And something said, "Old fellow, you have had cherries enough for one time, certainly. Now teach yourself to enjoy *looking* at these, and admiring them *without* tasting, when you do not need them."

I had a long ride before me, and it was time to go on. I looked at the cherries, and again felt a longing to taste them; and then I decided to try to learn in my old age to enjoy things without touching them or appropriating them, just as much (or perhaps *more*) because I exercised a little self-sacrifice. And then I looked at that beautiful tree with its loads of fruit gracefully bending in the morning breeze, and felt another thrill, and I rather think one of a higher type, in rejoicing to see what others had to make them happy.

Now, dear reader, do not think me foolish or sentimental when I tell you of another thrill of joy and happiness that came to me that morning. I was undecided about my way. No one seemed to be near of whom I might inquire, until I passed a pretty young lady, probably a teacher going to her school.

She smiled very pleasantly, gave me all the information I desired, and then, like the clematis, there seemed to be something in her smile that was almost roguish or playful. The clematis said to me something like this:

"Mr. Root, you did not know before that there was any thing in the whole wide world so pretty, did you? Well, I am glad to have given you this pleasant surprise, and to remind you again that 'eye hath not seen, nor ear heard, neither have entered into the heart of man, the things that God hath prepared for those who *love him*.'" Then it occurred to me that, for many months back, my heart has been unusually pure, and free from sin or sinful thoughts, and I was reaping the promised reward. I did not want the clematis. There was not a trace of the sin of covetousness in my heart. I enjoyed having the clematis belong to the man who planted it and cared for it. In regard to the cherries, I did want them at first, but afterward I experienced a keener thrill of pleasure and joy by not touching or tasting them, even though the owner would doubtless have given them to me freely had I asked for them. And now may God help me to be careful just how I say what I wish to; but before I say it I wish to tell a little story.

Since the death of Dr. James Brand, of Oberlin College, it has been my pleasure to listen to a sermon in regard to the life of that good man. Dr. Brand grew up in the wild forests of Canada, with almost no opportunity at all for an education. He hungered and thirsted for books, but was too poor to buy them. When he was well along in his teens he attended the meeting of a debating society at a country schoolhouse. The subject was, "Which is greater—the works of God or the works of man?"—that old, old topic. Young Brand was long, lank, awkward, and uneducated. His hearers were laughing at the miserable work he was making; but his last illustration of the works of God turned the scale. In summing up the case he asked the audience to give their attention *finally* to God's grandest work, a beautiful woman; and then the eloquence he displayed in after-life broke forth for the first time, and with cheers and applause he won the day. To the soul that loves God, nature and art *both* unfold beauties that a bad man never gets a glimpse of; but whether it be flowers or fruit, or the subject that Dr. Brand called up for his closing argument, let us remember that to enjoy these things really, self and selfish feelings and passions must be gotten rid of. They must be *crucified* and put out of the way. Then shall the soul be prepared to enjoy these gifts that God prepared for him from the beginning of the world. "No good thing will he withhold from them that walk uprightly."

Before leaving home I proposed to explore a cave in the neighborhood of Flat Rock, Seneca Co. When I came into that little village I was told there was no hotel, but that I could get dinner at a farmhouse near by—a dainty little country home, with fruit, flowers, and a pretty garden adjoining. The men folks were at work in the field; but *another* pleasant young woman smilingly told me I could have dinner, and, furthermore, that I could lie down in a cool breezy place, and have a nice nap before dinner. As I closed my eyes and sank into unconsciousness, more thrills of thanksgiving and praise came into my heart. I have put up at hotels where it cost a dollar for lodging and a dollar for each meal; but, oh dear me! such hotels can not compare with this country home. We had a beautiful dinner of things from the garden, and a cherry pudding for dessert. Now, I do not know how other folks feel about it; but no great hotel or Pullman dining-car ever served such a delicious cherry pudding as that was. Perhaps one thing that made me enjoy it was that I felt it was a *Christian* home. While I am speaking of the rest and refreshment that I enjoyed so much at Flat Rock, let me tell you about my dinner in a little country town two days later. I will not give you the name of the town *this* time. There was only one hotel in the place. It was half hotel and half saloon. The saloon was the "bigger half." I felt that I should be misused in that place if they knew who it was who sat down to dinner, so I decided to make no remark that would give any one a clew as to who I was or where I came from. Before we were half through, however, a burly red-faced man at the head of the table commenced:

"Stranger, a'n't you a preacher?"

I assured him I was not.

"Then you belong to the Salvation Army, certain."

I told him he was mistaken again. Finally he said:

"Well I know you are a *Christian*, any way."

At this charge, I was obliged to show my colors, and to admit that he was right. Then I asked him:

"My dear sir, may I inquire why you first took me for a minister, then declared I must belong to the Salvation Army, and finally *insist* that I am a Christian, any way? What do you see about me that makes you take this position so strongly?"

"Well, I knew you were a Christian the first time I looked at you. I can see it in your face."*

Just then it occurred to me what is said in Revelation: "He that overcometh will I make a pillar in the temple of my God. . . And I will write upon him a new name." If there is something in my make-up that proclaims I am a Christian, even when I try to avoid the subject, then shall I rejoice. I am inclined to think, however, that my face strongly proclaimed to every one that I was not a *drinking* man; but that man's face strongly proclaimed to the whole wide world that he *was* a drinking man, and a hard drinker too.

When I started out I had asked for physical strength. The petition was granted, and I rode thirty or forty miles every day for several days; less fatigued, perhaps, than I ever was before with such roads as I chanced to find after the rain that came once during the night. I asked for physical strength, and that only. The prayer was answered, and far more than I ever thought of asking for. I had enjoyed a glimpse of the beautiful world, met pleasant people, and had one of the most delightful times of my life.

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* And they shall see his face; and his name shall be in their foreheads.—REV 22:4.

HIGH PRESSURE GARDENING BY A. I. ROOT.

SELLING RECIPES FOR DOING THINGS, ETC.

In a recent issue of one of my favorite agricultural papers is the following advertisement:

> POTATO-GROWING.
>
> For a number of years past I have been experimenting in the cultivation of potatoes, and have succeeded in developing a mode or process of planting, by which their yield is increased at least 50 per cent. The only extra expense above the usual or ordinary way of planting them is two days' extra labor per acre, for one man at the time of planting. In all other respects the potatoes are cultivated and cared for in the usual way. I will mail the instructions, giving full directions, and explanation of the new mode of planting, for the sum of $1 00. D. TYLER,
> 806 North McKinley Ave., Canton, O.

As I am interested in all improvements in growing potatoes, I sent the dollar at once, and the following is what I received, so badly written that it was really a task to decipher it:

> NEW MODE OF PLANTING POTATOES.
>
> Prepare and have the soil ready for planting in the usual way of getting the same ready for ordinary planting. Select the seed potatoes from good and well-matured potatoes. If necessary to cut them, cut lengthwise and with three to four eyes to the hill. Do not break off the sprouts before planting. The potatoes will, of course, send out new sprouts, but every repetition of sprouting is weaker than the first, and the breaking off of the first sprouting-eyes, and also the selecting of small or immature potatoes, is the greatest cause of the deterioration or the running out of potatoes. It is also of great importance that potatoes intended for planting should be kept in a cool and dark place. so as to prevent their sprouting before they are planted. They should, however, be selected and gotten in readiness a few days before planting, and exposed to the sunlight, spread out, if possible, for a few days.
>
> When you have dropped or planted, and before any ground is covered on them, cover or drop, say, a quart or three pints of cut straw, hay, or chaff, or a mixture of them, on the potatoes—that is, on each hill, and with either an old broom or any convenient thing spread the straw or hay covering so that there will remain, say, about an inch of the covering on the potatoes, and also all around them, the same thickness—that is. as far as the covering will go; then cover the ground or soil on and over the covering that is on and about the potatoes, using or covering the same amount or thickness of soil as you ordinarily cover over potatoes when planting them—say if loose loamy land, 4 to 5 inches; if sandy loam, 3 to 5 inches; and if a heavy soil, 2 to 3 inches.
>
> Cultivate and attend the potatoes during their growth in the usual and regular way, keeping them clear of grass and weeds.
>
> The cost or time consumed in preparing the straw or hay should not be considered as an expense, as the benefit that they will render the soil will more than compensate for the cost of it, and will be a benefit for two or three successive crops of any sort.
>
> Almost any kind of straw or hay will answer the purpose; but either must, of course, have been dried or cured. Musty or sour grass or hay will answer the purpose.
>
> It will take, say, about 300 bushels of cut straw or hay to the acre of potatoes for the covering. The hay or straw should be cut no longer than an inch; shorter will be better.
>
> I have found "level culture," no hilling, the best, as they are not as liable to suffer from drought, and also saving some labor.
>
> Plant during the "dark of the moon." I have found it prevents excessive running into tops of the plants, which they are liable to if in rich soil. D. TYLER.

Now permit me once more to protest against this whole business of selling information in this sort of way; and I want to protest vigorously to the editors of our various agricultural papers. Instead of accepting an advertisement of this sort, send the man a dollar, and then print his great secret, for the benefit of your thousands of subscribers. I do not know how many have sent a dollar as I did. I hope not very many, because our people are too well posted to bite at such baits.

Let us take a common-sense view of the matter. A dollar should buy a good-sized book full of illustrations on potato-growing. In fact, it would buy all the books devoted specially to potato culture, and leave some money, if I am correct. And then the knowledge furnished in this way is never new or valuable, so far as my experience goes. I have been sending money for every thing of the kind offered for years past, and the above is a fair sample of all the valuable information (?) I have ever received. The plan of sprinkling straw or chaff on potatoes before covering is not at all new, and strawy manure is ever so much better than the chaff or cut straw, only it is apt to induce scab. Father Cole, the author of the "New Agriculture," used the same plan, except that he used forest leaves, and he declared that the latter are very much better than chaff or any thing of that sort. Matthew Crawford, the great strawberry-grower, has for years used wheat bran. He says this will produce a larger result than any commercial fertilizer, but he afterward said it did harm instead of good during very *dry* seasons. No doubt friend Tyler *thinks* his idea is new, but he is not at all posted on potato growing. He has not read the books devoted to the subject, nor even the agricultural papers; and I was not at all surprised to see, toward the close, that old exploded nonsense about the "dark of the moon." Perhaps some of my good friends right here will jump up and declare that planting at the right time of the moon is all right. I have only to say again that different experiment stations have tested this "moon" business with more care and scientific accuracy than any *farmer* ever did, and they have decided that the moon has no effect whatever, either on the vegetation or on the weather.

With the exception of the moon part, the directions are all very good for caring for potatoes; but I would expose the potatoes to the light, spread out a very much longer period than mentioned above — that is, where we want to plant late and still preserve the sprouts. We spread ours out on trays on the barn floor from the first of May until the last of June — sometimes clear into July where we plant that late. Where ground is suffering from a lack of humus, a pint of chaff to each piece or potato might make quite a difference in the yield; but very rarely, I think, as much as 50 per cent. We have for years used various kinds of rubbish in the same way, such as weeds, grass, corn fodder, old straw, grain or corn stubble, or any thing we could scrape up that will rot and produce humus. Put it in the furrow after you have dropped your potatoes, and be sure it is all well covered up with dirt; then if you have a big rain afterward, this trash will all be rotted by the time the potatoes need it. This trash need not be dry; in fact, I would rather have it wet; and green grass, or even green corn fodder, can be used in the same way. But *by all means* the cheapest way to do this is to plow under green crops, such as a heavy growth of clover, before you plant your potatoes; then the potatoes should be put down so that they get very close to the green clover; and, in fact, this is the way the great potato-growers of the United States mostly manage. Cutting up dry straw, and handling it in the way indicated, may do for a small garden — not one where potatoes are grown by the acre. And, by the way, these valuable instructions (?) seem to be for planting potatoes in the old-fashioned way, three or four pieces *in a hill.* I had almost forgotten that anybody planted potatoes in that way now.

OUR POTATOES AT THIS DATE, JULY 11TH.

Our ten acres are looking beautifully, and we have managed this year so as to keep them almost absolutely clean without the use of a hoe at all; that is, there are no weeds except a few at the ends of the rows. These we get out with a hoe; but in the middle of the fields the rows are almost absolutely clean. This was done by the use of the slanting-tooth smoothing-harrow and the weeder. Stirring the soil enough from the time of planting until the weeder could not be used any more because the potatoes are so large is an absolute cure for weeds. When the potatoes get so large as to begin to shade the ground, very few weeds will start. As a rule our potatoes are so far almost free from blight, and bugs have made comparatively little trouble. They seem to pitch on to the poorest and most spindling hills; whereas the rank strong vines are not likely to be troubled with bugs, unless it is the blister-beetle. These have commenced in a few places, just as they did last season, and we know of no better method at present than knocking them down on the ground with light paddles and stamping them under foot, and in this way driving them out of the patch. During very hot dry weather along the first of July, in many places our extra-early potatoes showed something that might be called blight. The leaves curled up, and finally turned black around the edges. I think this must be in consequence of the heat and lack of rain. My impression is, the heat of the sun on the hot ground has also something to do with this. I will tell you why. The potatoes in our orchard that I spoke about, planted right on top of a heavy growth of timothy, dandelions, and clover, and then covered with straw, have the most perfect foliage at the present writing of any in the whole ten acres. In fact, there is not a leaf that is curled up or turned black around the edges; and, strange to tell, so far not a bug of any kind has bothered these potatoes under straw. I can account for their rank luxuriant growth by the fact that the ground is damp and almost wet down under the straw, and has been so during all the dry season so far. The great growth of green stuff that was rolled down there and covered up, rotted so as to make a damp mass of stuff that was for a long time wet and slimy. The sun has never touched the ground at all, on account of the straw; and until the drouth set in these potatoes seemed rather too wet. So far I am very much pleased with the experiment; and I learn by the agricultural papers that almost all kinds of garden stuff, such as melons, cucumbers, etc., have been grown successfully in a similar way. On a part of the ground where the straw is not quite heavy enough the dandelions got through to some extent; but a sufficient covering of straw will drown out and rot out even the dandelions. A potato will get up through a mass of straw that would be too much for any sort of weed, if I am correct about it. Of course, we can not tell what the crop will be just yet; but there are lots of little potatoes the size of hickorynuts, as clean as if they had been washed in water.

HEALTH NOTES

BY A. I. ROOT

THE WELLS AND SPRINGS OF THE STATE OF OHIO, AND THE WATER WE DRINK.

I have just been exceedingly interested in quite a good-sized paper-bound book, entitled "The Rock Waters of Ohio," by Prof. Edward Orton, of the Ohio State University. I have before alluded to the fact that we have an Ohio State Board of Health, and that the water furnished the people in any town or city in Ohio has to be examined and passed upon by the State Board of Health before it can be furnished to said town or city. Prof. Orton has gone all over the State collecting facts in regard to the matter of wholesome drinking-water for our Ohio people. The book mentioned tells all about the experiments in drilling, different depths, quality of the water obtained, analysis of the water from our great springs, and a complete discussion of the whole subject; and last, but not least, he tells us that typhoid fever, diphtheria, and other similar diseases, have entirely disappeared in families where they used entirely the water from these deep wells after it was approved by the State Board of Health.

Now, there is not a man, woman, or child, I might almost say, on the the face of the earth, who is not interested in this matter. Your letters have told me for years past of sickness and death in your own homes, and many of you have told of these very fevers. Think of giving the innocent children or babes, contaminated water to send them to untimely graves, or injure their health for life! Think of keeping the doctor day after day, week after week, and month after month, and paying him a bill that goes away up into the hundreds of dollars, when it might all have been saved by providing good wholesome *water* to *drink!* Why, you had better go without a clock in the home; you had better go in ragged clothing, or put up with insufficient food, rather than give the slow poison of infected drinking-water.

These things have been talked over and over until every farmer who takes a newspaper knows how a well should be made. Keep the surface water from getting into it at any time of the year. Every family knows, too, that the well should be away off from the stables, privies, pigpens, and barnyards. Better still, get the water out of the rock, and have an iron tube go clear down into the rock, or something equivalent. In very many parts of our State, flowing wells are obtained by going to sufficient depth. Springs, I believe, are usually safe, but not always so. Better have the State Board of Health examine the water. Cisterns, if kept clean, are much safer than the average well; but in hot weather I think I would have the drinking-water boiled, then cool it afterward if you want it cold.

At present writing I can not discover exactly where this book is to be procured. It comes from the Government Printing-office at Washington, and has been sent out this present year. If you live in Ohio you might write to Prof. Edward Orton, Ohio University, Columbus, Ohio. If you do not live in Ohio, direct your letter to Charles D. Wolcott, Department of the Interior, Washington, D. C. Just think of driving typhoid fever and diphtheria out of the large cities *at one stroke*, by furnishing said cities good drinking-water from one single artesian well! And now almost every county-seat in our State is provided with drinking-water approved by the Board of Health, and hundreds of other cities and smaller towns are fast falling into line. May God be praised that good wholesome water is so near at hand, and in such great quantity, if we only reach out our hands (or, rather, bore down to the rocks) and take it as a free gift. I am personally acquainted with Prof. Orton. He is an enthusiast, like myself, in this matter of good pure drinking-water for the whole wide world. This is just the season of the year, friends, to get stirred up on this *exceedingly* important subject.

THE ANTI-CANTEEN LAW AND PRESIDENT M'KINLEY.

On page 369, May 1, I closed my remarks in regard to this matter by saying:

> Surely the President of the United States has something to say and something to *do* in a crisis like this.

Well, from that time to this I have been more troubled about this one thing than any thing else that threatens our United States of America. I reason that, if this thing is to be an example and a *precedent* for officers of the law (when they touch the liquor-traffic) throughout the United States, we are in greater danger than ever before. In view of this you may be sure I rejoiced when I saw in the Cleveland *Leader* for July 12 that a delegation of our best temperance men had personally visited our President, and laid the matter before him. Below is the conclusion of quite a lengthy article in regard to the matter:

> The paper declares that the agitation upon this subject will not subside, and the President is asked to give a rehearing upon the construction and interpretation of the law
>
> The members of the delegation after their call reported the President as saying that the opinion of the Attorney General was given without any previous knowledge on his part—that he did know that any opinion had been asked for by the Secretary of War, neither did he know that such an opinion had been given until several days afterward, and that he would look into the matter personally, and if the opinion of the Attorney General was found to be correct it should stand; but he added that all men are fallible, and that if the Attorney General had made a mistake he had no doubt he (Griggs) would be ready to rectify it—that he was an able lawyer and a man honest and courageous.

It seems a little strange that the Attorney General did not know what the Secretary of War had been doing in regard to the canteen business, and *still* stranger that an honest man could read that law and decide it meant that the canteen business should *go on*. Never mind. We hope and pray that our President may insist on having this *crookedness — straightened*.

KIND WORDS FROM OUR CUSTOMERS.

I have intended two or three times to stop GLEANINGS, but I would find something in each issue worth a year's subscription, so I guess I will keep on taking it, even if the bees do have to go. C. H. GILMORE.

Langdon, Minn., May 24.

I have just received strawberry-plants, Carrie and Margaret, and was astonished at their appearance of crisp and vigorous freshness, promising much for so small a start. I was not aware plants could be shipped by mail, and come out so little damaged. I have received plants by mail before, but never any like these. DR. HOMER BOWERS.

New Ross, Ind., June 23.

SAMPLES OF THOSE PEANUT-CELL QUEENS.

Yours of June 30, inclosing four queens, arrived July 1, at noon, all in good condition. I introduced them as per directions. All were cheerfully accepted by the bees, and liberated in 30 to 40 hours. Yesterday I examined them all, and found them "fat and happy," and laying profusely in every empty cell, occasionally two eggs in a cell. They are all beauties, and especially the majestic select Italian queen. I think I never saw a finer queen. I would not take $5.00 for her. C. S. INGALS.

Morenci, Mich., July 9.

Labels received. They please me very much. Other goods received, and are very satisfactory. A few of the dovetails are cut a little too deep in the extracting-supers for close-fitting frames. By making some shavings 1/32 thick, and putting in the dovetails when nailing, I maintain the proper inside length, 17¼. I am so glad there is nothing seriously wrong. The general workmanship is excellent. While you have no extra help (necessarily unskilled) working for you I wish I knew just what I wanted for the next ten years, because another such dull season may not come. But, hold on! I can order during the winter months, can't I? Your extra help is gone then. I hope to get my orders in *early* in future. One reason why I did not order any thing last winter is because I was undecided, and wanted to make certain wintering observations before making up my mind.

Eden, N. Y. E. W. BROWN.

QUEENS, QUEENS, QUEENS.

By Return Mail.

Bred from imported mothers; dark leather-colored stock; extra honey-gatherers; also from light yellow and albino strains at very low prices. My stock is of the best. Forty years' experience warrants me in saying this.

Select tested	each,	$1.50.
Warranted purely mated	each,	.75.
Warranted purely mated	six,	4.00.
Warranted purely mated	dozen,	7.00.

Send for 40-page catalog of bees and queens; also a full line of bee-keepers' supplies, including The A. I. Root Co.'s goods at their prices.

W. W. CARY, = Lyonsville, Mass.

In writing, mention Gleanings.

Adel Bees ARE not Italians; they are GOLDEN Carniolans, and practically a non-swarming, non-stinging strain of bees, great honey-gatherers, and sure to winter. Tested queens, each, $1.00; six queens, $5.50, or $9 00 per dozen. Every thing guaranteed. Book giving 37 years' experience in rearing queens sent free.

HENRY ALLEY, Wenham, Mass.

July Prices on Queens. : : : :

Large yellow queens from fine Italian stock, the best of honey-gatherers. Untested, 50c each; $6.00 per dozen. Tested, $1.00 each. Orders filled promptly, and satisfaction guaranteed.

J. W. K. Shaw, : : Loreauville, La.

A RARE CHANCE

to purchase an apiary of 200 colonies of Italian and Carniolan bees in 10-frame Langstroth and Dovetailed hives. The hives are two-story, with 10 brood and 8 extracting frames in top story, all wired for extracting. Combs are straight, and in fine condition; last year's crop of honey was over 700 gallons from 150 colonies.

Purchaser can occupy the present good and convenient location of two acres, well shaded with a comfortable residence for a family, for $10.00 per month, within 100 yards of fast line of electric cars that go through main part of New Orleans every five minutes. Mail service twice a day. Poultry-houses and yards at cost of wire netting in fences, and some fine poultry for sale; also furniture in house.

All must be sold, and location abandoned on account of poor health. All honey, poultry, and eggs can be sold in city home market at good prices. Correspondence solicited.

J. W. Winder, Halfway House, N. Orleans, La.

In writing, mention GLEANINGS.

No Money in Advance!

$15.50 HIGH GRADE BICYCLES. Shipped anywhere C. O. D., with privilege to examine. Latest styles for Men Women, Boys and Girls, well made and durable.

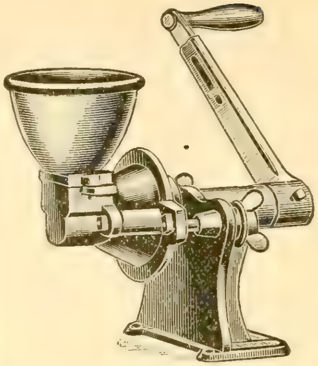
$60 "Oakwood" $24.50
$50 "Arlington" $22.00

No better wheels made. Others at **$10, $13.50, $15.50, $17.50 & $19.50**; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

In writing, mention Gleanings.

Albino Queens. If you want the most prolific queens, if you want the gentlest bees, if you want the best honey-gatherers you ever saw, try my Albinos. Warranted queens $1.00; untested, 75 cents.

J. D. GIVENS, Lisbon, Texas.



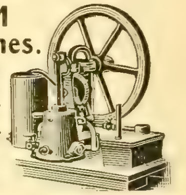
Do It Yourself.

Be your own Miller.... Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**

Address **The Frank Machinery Co., Buffalo, N. Y.**

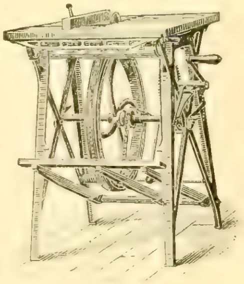
In writing advertisers, mention GLEANINGS.

Pierce FARM Engines.



3-4 and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. **Pumping Engines** all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO.,
BOX 17. Racine, Wis.



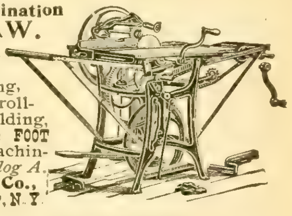
Barnes' Hand and Foot Power Machinery.

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, boxes, etc. *Machines on trial.* Send for illustrated catalogue and prices.

W. F. & John Barnes Co.,
545 Ruby St.,
Rockford, = - Ill.

In writing, mention Gleanings.

Union Combination SAW.



For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line **FOOT** and **HAND POWER** machinery. *Send for Catalog A.*

Seneca Falls Mfg. Co.,
44 Water St. Seneca Falls, N. Y.

In writing, mention GLEANINGS.

Italian Queens.

Pure-bred, five-banded Italian queens 75 cents each. Tested, $1.00 each.

Daniel Wurth,
Falmouth, Rush Co., Ind.

Two Letters.

Since I began selling queens of this superior stock, I have received a great many letters on the subject. Two of these appear below. I will be frank enough to say that they were chosen because they illustrate so strongly the difference there is in different strains of bees. The first is from a customer in Indiana. He gave me permission to use the letter, but said that the institution with which he is connected would not approve of the use of his name in an advertisement. Here is the letter:

OLDENBURG, IND., June 14, 1899.

MR. W. Z. HUTCHINSON, FLINT, MICH.

Dear Sir:—Your postal is received. All I ask is that you send me a good queen. I have lost patience in buying queens. If they don't turn out hybrids, crosser than the ones I already have, then they are the "golden Italians," which are as lazy as they are prolific. This is a good locality for bees, each colony yielding from 75 to 125 pounds. The "golden Italians," however, do not furnish such amounts. From a colony of that variety, that I had last year, I got only ten partly finished sections. It is needless to say that I pinched the queen's head. Yours truly, ——— ———.

This man must have been unfortunate in his purchase of golden Italians, as I have had some strains of "goldens" that were excellent workers, but his experience shows what a great difference there *may be* in different strains of bees.

The other letter is from a well-known bee-keeper, and reads as follows:

MIDDLEBURY, VT., June 18, 1899.

Friend Hutchinson:—In looking over the last Review I noticed an advertisement of queens from a $100 queen. If you have something that is choice I want it. You know that I believe in improvement of bees by careful breeding, and I am now working along that line. Last year I bought from ——— ——— one of his choice queens, for which I paid him several dollars, but I would not sell her now for many times what she cost me. The bees reared from her daughters are very superior honey-gatherers, and I expect that she will be worth more than $100 to me before the season is over. I believe that there has not enough attention been paid to breeding bees for business. It is somewhat difficult for a bee-keeper with hundreds of hives to look after, to breed as carefully as one who makes of this his lifework.

As ever yours, J. E. CRANE.

It is true, as Mr. Crane says, that the bee-keeper with hundreds of colonies finds it difficult to do as careful work in improving his stock as can be done by some breeder who makes a lifework of this point.

As stated in former advertisements, I have the handling of queens from a stock of Italians upon which a good man has been at work for twenty years, selecting the best honey-gatherers *each year* to breed from, and crossing them, so far as possible, with drones not akin. To produce a superior strain of bees has been his sole aim during all these years; and my experience with this strain, and my correspondence with others who have tried it, have proved to me that he has attained a fair degree of success. The chief value of this stock lies in its industry—its ability to store large quantities of surplus. Then comes its hardiness—its ability to winter well. Then it is very peaceable—easy to handle. It also caps its honey white—as the blacks do theirs.

The price of the queens is $1.50 each, but I guarantee safe arrival, safe introduction, and purity of mating; and at any time within two years, if a purchaser feels that he has not got the worth of his money, he can return the queen, and get his money back, and 50 cents to boot to pay for his trouble.

If you are interested in this matter, and have not read my advertisements in the last few issues of Gleanings, turn back and read them, as they give particulars not given here.

I said that the price would be $1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the REVIEW. Any one sending me $1.00 for the REVIEW for 1899 can have one queen for $1.00; that is, I will send one queen and the REVIEW for 1899 for only $2.00. Of course, this special offer is made for the sake of getting the REVIEW into the hands of those who are unacquainted with its merits. Orders will be strictly in rotation.

W. Z. Hutchinson, = = Flint, Michigan.

Bee Supplies.

Root's Goods at Root's Prices.

POUDER'S HONEY-JARS,
and every thing used by bee-keepers.
Low freight rates; prompt service. Catalog free.

Italian Queens, 4 and 5 banded, not a hybrid in the yard. Untested, 75c. Tested, $1.00.

WALTER S. POUDER,
512 Massachusetts Ave., Indianapolis, Ind.

In writing, mention Gleanings.

CHAS. ISRAEL & BRO.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.

Honey and Beeswax.

Liberal Advances made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

Eastern Bee-keepers.

If You are in Need of

APIARIAN SUPPLIES

send for our illustrated catalog describing every thing a bee-keeper uses. We keep the most popular goods, and sell them at prices that are right.

Italian Queens.

We own two apiaries, and our bees are "hustlers" for honey. "All yellow" Tested Italian queens, $1.00 each; three for $2.50.

I. J. STRINGHAM,
105 PARK PLACE, - - NEW YORK.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.
W. H. LAWS, Lavaca, Seb. Co., Ark.

SPECIAL NOTICES BY BUSINESS MANAGER

See our special offers on GLEANINGS on page 557.

HONEY WANTED.

We have received only a few responses to our call for honey. If the past season's experiences are repeated this year the honey marketed early will bring the best prices. Let us hear from you with description of honey you have to offer.

WANTED.

We desire to complete a few more volumes of GLEANINGS, and lack the following issues: Jan., Mar., and May, 1875, and Jan., Feb., April, May, Sept., Oct., and Dec., 1881. If any one has any of these to spare we shall be pleased to hear from you. Will give GLEANINGS three months each for a limited number of copies. Write us before sending.

SECOND-HAND FOUNDATION-MILLS.

We have at this writing the following second-hand foundation mills which we offer at the following prices:

One 6-inch Root, No. 1858. This will make fair thin or extra thin; in good order; several cells slightly damaged; price $12.00.

One 6-inch Root, No. 05; one bad cell-point slightly flattened; extra thin; price $15.00.

One 10-inch Root, No. 1949; hexagonal cell; this has 2½-inch rolls, and has been in use in our wax-room; in first-class condition for thin super. A new mill of this style is worth $30.00; will furnish this one for $20.00.

One 10-inch hexagonal No. 1959 for thin super. This has also been used in our wax-room, and has one bad cell; price $18.00.

One 2½x6-inch, No. 06. Price of new mill with these large rolls, $24.00. Price of this, $15.00.

One 2½x6-inch, No. 07. Would make light brood. Price $15.00.

Send for samples of the mills you are interested in, provided you intend to purchase, and state which ones you wish to see samples of, and we will forward them promptly.

Special Notices by A. I. Root.

WANTED, SEED OF THE FIGWORT OR SIMPSON HONEY-PLANT.

If any of our readers are prepared to gather us some fresh seed during the coming fall we shall be glad indeed to hear from them.

STRAWBERRY-PLANTS IN AUGUST.

We shall be prepared to furnish any quantity of plants potted in jadoo fiber, postpaid by mail, at 4 cts. each, with the exception of Nick Ohmer. These will be 8 cts. each. At present writing, unless we have very much more rain than we have been having, layer plants will not be ready before Aug. 15. There is almost no risk at all with the above potted plants, while there is always a great deal of risk with layer plants, say any time before Sept. 1.

WHAT TO PLANT DURING THE MONTH OF JULY WHERE EARLY CROPS HAVE BEEN HARVESTED.

There is certainly no reason why a garden should not be a thing of beauty and a joy for ever all along through the fall as well as in the months of April, May, and June. But to *make* this thing of beauty, every bit of ground must be promptly cleared up and planted with the "something else" as soon as the last crop is gathered. We picked our last strawberries about June 20; and on that same day every thing was turned under, the ground was nicely pulverized, and potatoes planted. To-day, July 11, the potatoes are up, making a full and complete stand, and growing with great vigor. Now, then, where you dig your early potatoes, or where early peas have been harvested—in fact, when any other crop has ceased to *need* to occupy the ground longer, something else should go right in promptly. What shall that "something else" be? Strawberries, if you can afford potted plants, or if you have a transplanter and can take them up on your own grounds. Put out now either of the above ways, with thorough culture and plenty of manure, they will bear a big crop next year. If you want some winter onions, now is just the best time to put them out. We have plenty of sets ready to ship at 10 cts. a quart; 50 cts. a peck; $1.50 per bushel. Still cheaper for larger lots. These onions will hold their own right on the same ground, absolutely without cultivation, year after year, although you will get much nicer onions, and sets too, if you give them cultivation and manure.

Wax beans, early sweet corn, carrots, cucumbers, peas, radishes, and turnips may be put out now. You can set cabbage-plants, cauliflower, celery, and tomatoes, and almost any other kind of plant, if you are where you can get them; and it is exactly the right time to put out all kinds of turnips, spinach, and radishes; in fact, you can get nice radishes if put out at this time, that would fail at almost any other season. Of course, the ground should be rich; and if it is not rich, you want to make it so before you can make *any* claim to being a high-pressure gardener. If you have vacant land that you want to enrich, and can not afford to buy the manure, sow any of the clovers—alsike, red, peavine, alfalfa, crimson, or sweet. If you wish the crimson clover to winter over without the possibility of failure, get it in during the last of this month.

The last of July is just the best time, ordinarily, to sow buckwheat; and unless you have frost unusually early you will get a crop of honey and a crop of grain too. Cow peas and soja beans are just the thing to put in now to turn under just as soon as they are killed by frost. Of course, it is too late to stand much of a chance for ripening the seeds unless it is some of the extra early varieties. The American coffee-berry would probably ripen seeds if planted now. For prices of any of the above seeds, write for our seed catalog.

At this date, July 12, Japanese buckwheat for seed is worth $1.10 per bushel; two-bushel bag, $2 00. At any thing like this price it will pay bee-keepers to grow it. I myself have grown as much as 50 bushels to the acre; but no one can tell what the price will be in the future. We are going to put in buckwheat just as fast as we can vacate a piece of ground. If it should be killed by the frost we shall have some honey for the bees, and a crop to plow under that is worth all it costs to grow it.

THE BLISTER POTATO-BEETLE.

In another place I said that our ten acres of potatoes had been thus far but little troubled by bugs. To-day, July 15, I shall have to take that back; for up in our swamp, and on the hill, the very place where the blister beetles were so bad last year, they came pretty near eating our potatoes up, and that, too, in but little more than 24 hours. In fact, we had four men at work all day yesterday, killing beetles. We ran a furrow between the potatoes, then shook them off the vines in the furrow. The ground is so dry they could not climb up the sides, and then we trampled them and pounded them with clubs until they were dead, dead, dead. This is expensive work, but we could not well manage to do any better. This morning, however, we gave the men some large dish-pans with a little coal oil in the bottom. They got at the beetles quite early, when they were mostly clustered on the potato-tops. By getting up to them carefully, and bending the vines over the pan, we managed to shake the greater part of the enemy into the oil. One thing is certain: They must be fought to the bitter end or your potatoes are ruined.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

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J. B. HAINS, Bedford, Ohio.

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This is the season when farmers and others begin to experience the difficulty and annoyance of having their wagon-wheels dry out, shed their tires, and become shaky and creaky. This condition means one of several things. Either the wheels will have to submit to repeated soakings in water, which but helps on the general tendency to decay, or the tires will have to be cut and re-set, or re-set in boiled oil, or a new set of wheels will have to be purchased.

If a practically indestructible wheel were bought in the first place, repairs with their attendant expense would be out of consideration entirely. Then, too, there would not be that waste incident to hauling half a load because the wheels were weak and would not stand more. Surely the remedy lies in buying wheels so made that the tires can not come off from any possible shrinkage; so that hubs, spokes, and felloes can not shrink, become loose, or rot; wheels that are strong enough at all times to carry any load two horses can draw with comfort, and, finally, wheels with broad tires that afford perfect traction and ease of locomotion without cutting or rutting up the farm or roads.

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for the
HIVE AND HONEY-HOUSE

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that will just "roll" in the honey, and that are wonderful red-clover workers, also gentle to handle and exceedingly hardy, then try Moore's strain of Italians —the result of 20 years of careful breeding by selecting the finest honey-gathering stock each season from which to rear queens, and stocking my apiary with drones reared from other fine honey-gathering stock not akin. Send for circular, and see what my customers say. Warranted queens, 75c each; 6 for $4.00; 12 for $7.00 Select warranted, $1.00; 6 for $5.00; 12 for $9.00. Strong three-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Those who never dealt with me I refer to A. I. Root, who has purchased of me over 900 queens.

J. P. Moore, Lock box 1, Morgan, Pend. Co., Ky.

QUEENS. Either five-banded golden or from imported Italian mothers, 60c each; 6 for $3.00. Breeder, $1.50. I warrant safe delivery and satisfaction, or no pay. Give me a trial.

CHAS. H. THIES, Steeleville, Ill.

In writing, mention Gleanings.

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Daughters of best imported Italian queen mothers; reared by Doolittle method warranted purely mated to drones of imported stock from a different source—hence, a direct cross. Fourteen years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens 50 cts. each. Safe delivery and satisfaction in every case, or money refunded.

L. H. Robey, Worthington, W. Va.

WANTED.—**Samples of American and Foreign Honey.** I am making a collection of samples of honey from different sources, and shall be pleased to hear from parties in any locality who can supply me. I have only some of our most common honeys now, so can likely use any variety that may be offered. Would like to exchange with as many as possible.

A. L. BOYDEN, Medina, O.

Wants and Exchange.

WANTED.—For cash, No. 1 white honey in Danz. 4×5 plain sections. Write for particulars. Four sizes of Prize cartons for comb honey, and 66-page book, "Facts about Bees," for 6 cts. in stamps.

F. DANZENBAKER, Box 66, Washington, D. C.

WANTED.—Several thousand pounds of 1899 extracted clover honey. Will furnish cans.

I. J. STRINGHAM, 105 Park Place, N. Y.

WANTED.—To exchange my Common Sense non-drip shipping-cases, holding 18 1¾-inch wide, or 16 wider sections, put up in lots of 50, laid down at your station for 8 cts. each, in exchange for No. 1 white and fancy comb honey at right prices in any quantity.

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We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

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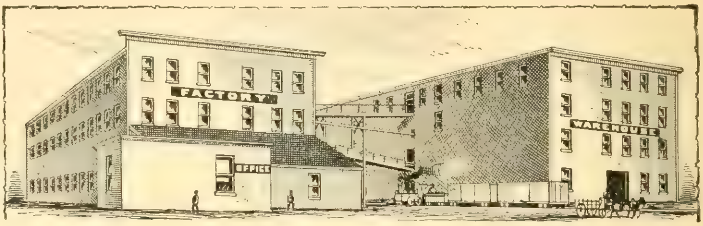

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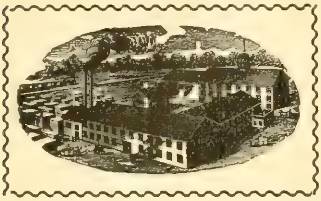

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P. O. M. O. Office, Lavaca, Ark.

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Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Italian BEES AND QUEENS. Queens, $1 00. Bees by the lb., $1.00. Nuclei, two frames with queen, $2.00; one frame, $1.50; each additional frame, 50 cts. each. **Mrs. A. A. Simpson, Swarts, Pa.**

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Bingham Perfect Bee-smokers and Honey-knives.

Smoke Engine (largest smoker made.)	4-inch	stove.	Doz.	$13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	"	9.00;	"	1.10
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Large	2½-in.	"	"	5.00;	"	.90
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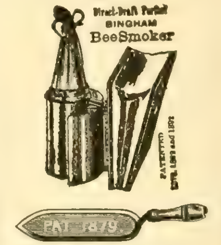
FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.
January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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CITY MARKETS.

NEW YORK.—We would suggest to our southern shippers of extracted honey that they endeavor to get the new crop into the northern market as early as possible, as later shipments grow heavy and stock accumulates here. Our market has dropped off some on beeswax Some new trade in comb honey. We quote our market as follows: Fancy white, 12@13; No. 1, 10 @11. Extracted Florida white, 7@7¼; Florida light amber, 6@6½; other southern, fancy, 65@70 per gal.; fair, 60@65; good, 52½@58 Beeswax, 25½@26½.
Write to us before shipping.
July 22. FRANCIS H. LEGGETT, New York.
Franklin, West Broadway, and Varick Sts.

CHICAGO.—A little comb honey is coming, and the best white in pound sections brings thirteen cents. Some of it is not properly sealed, and leaks from those few uncapped cells sufficiently to stain the cases and thus detract from its value. Amber grades, 10@11; dark, 7@8 Extracted white, 7@7½; amber, 6@7. Beeswax, 26@27, and sells on arrival.
R. A. BURNETT & Co.,
July 19. 163 S. Water St., Chicago, Ill.

ALBANY.—Honey market quiet. Very little demand. Expect new crop in shortly. Beeswax quiet, 25@27.
MACDOUGAL & Co.,
Successors to Chas. McCulloch & Co.,
July 20. Albany, N. Y.

CLEVELAND.—Very little demand for old honey now. We have calls daily for new honey, but no receipts as yet. We quote old honey to-day as follows: Fancy white, 13; No. 1, 12; No. 2, 11; fancy amber, 10; No. 1, 9; buckwheat, 7@8.
A. B. WILLIAMS & Co.,
July 19. 80-82 Broadway, Cleveland, Ohio.

DETROIT.—No old honey to quote, and no new offered. Prices are liable to rule higher, as the crop is short in this part of the State. The abundance of rain will no doubt help the crop of fall honey. Beeswax in good supply, 23@24. M. H. HUNT & SON.
July 14. Bell Branch, Mich.

FOR SALE.—5000 lbs. Wisconsin basswood honey. Price, in new basswood barrels holding about 360 lbs. each, 6½c; in kits holding 33⅓ lbs. each, 7c, f. o. b. 10c for sample.
G. W. WILSON, Kickapoo, Vernon Co., Wis.

FOR SALE.—Nearly 150 24-section crates of fine white-clover comb honey for sale to highest bidder, f.o.b. cars Ursa, Ills. Address
JNO. A. THORNTON, Lima, Ill.

FOR SALE.—2000 lbs. of comb honey, mostly in plain sections, from sweet and white clover, at 10c; also 2000 lbs. extracted (quality same as comb) in 60-lb. cans, at 6c, f.o.b. Macon.
GEO. A. HUMMER, Brazelia, Miss.

WANTED.—Quantity lots of comb and extracted honey. Car lots preferred. B. WALKER, Evart, Mich.

FOR SALE.—Locust and clover comb honey, mostly in plain sections, at $10.00 and $12 50 per 100 lbs. Extracted, in 60-lb. cans, 8 cts. per lb.
G. R. ROUTZAHN, Menallen, Adams Co., Pa.

FOR SALE.—Honey from alfalfa bloom, finest in the world according to best judges. Two 60-lb. cans for $7.20. THE ARKANSAS VALLEY APIARIES,
OLIVER FOSTER, PROP.,
Las Animas, Bent Co., Colo.

FOR SALE.—1000 lbs. of basswood and sweet clover honey in 60 lb. cans or Mason fruit-jars (qts. or pts.). Price, per box of 2 cans, $7.50; 1 doz. Mason qt. jars, $3.00; 1 doz. pts., $1.80; f. o. b. here.
W. J. FOREHAND, Fort Deposit, Ala.

QUEENS, QUEENS, QUEENS.
By Return Mail.

Bred from imported mothers; dark leather-colored stock; extra honey-gatherers; also from light yellow and albino strains at very low prices. My stock is of the best. Forty years' experience warrants me in saying this.

Select tested	each,	$1.50.
Warranted purely mated	each,	.75.
Warranted purely mated	six,	4.00.
Warranted purely mated	dozen,	7.00.

Send for 40-page catalog of bees and queens; also a full line of bee-keepers' supplies, including The A. I. Root Co.'s goods at their prices.

W. W. CARY, = Lyonsville, Mass.

In writing, mention Gleanings.

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MUTH'S HONEY-JARS,
MUTH'S HONEY-EXTRACTORS,
LANGSTROTH HIVES,

and every thing pertaining to same; in fact, every thing used by bee-keepers. Send for our catalog.

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WANTED---EXTRACTED HONEY.

I am now in shape to BUY extracted honey, either in large or small lots. Parties in the South, or in Kentucky, Indiana, Ohio, or West Virginia having any to offer will do well to sell to me, as Cincinnati is the greatest market for extracted honey in the States. Submit a small sample, stating quantity, style of package, and price expected.

◆

C. H. W. WEBER,
Successor to Chas. F. Muth & Son and A. Muth.
2146-8 Central Ave., Cincinnati, O.
References.—Western German Bank, Brighton German Bank Co., of Cincinnati, Ohio.

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A Warranted Golden Italian Queen Free!!

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The A. I. Root Company,
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Philadelphia, Pa.,

HONEY--WHO HAS IT?

We want large quantities of choice extracted and some comb honey. Will pay cash. Mail small samples and tell how put up.

J. A. Buchanan & Sons, Hollidays Cove, W. Va.

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How to get
GILT-EDGED HONEY
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Box 66, Washington, D.C.

300 Selected Golden Italian Queens

Large, and yellow all over; warranted purely mated; reared by Doolittle's method. Queens by return mail. Safe delivery and satisfaction guaranteed; have 11 years' experience. Price of queens, 75c each; 6 for $4.00, or $7.00 per doz. Order quick, as above queens are young, and will soon be taken. Read testimonials.

Romeo, Mich., July 10, 1899.

Mr. Quirin, Dear Sir:— The queens you sent me have turned out the yellowest bees in my apiary; are gentle to handle; are large, and well marked.

C. C. CHAMBERLAIN.

Blockley, Iowa, July 5, 1899.

Mr. Quirin, Dear Sir:—The queens got of you last year are giving good satisfaction—better than some untested queens I paid $1.00 for to breeders who will sell for no less at any time of year.

Yours truly, EDWIN BEVINS.

Address all orders to

H. G. Quirin, Parkertown, Erie Co., Ohio.

MONEY-ORDER OFFICE, BELLEVUE.

Apples. Red Astrakhan; good cookers; hand picked. $1.00 per barrel here f. o. b.

J. B. MURRAY, Ada, Ohio.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

VOL. XXVII. AUG. 1, 1899. NO. 15.

STRAY STRAWS FROM DR C. C. MILLER

YOU ASK ME, Mr. Editor, to make certain experiments because you're too busy. Can't do it. Not because I'm too busy, but because the bees are not busy enough.

JULY 17 I found two clipped queens quietly holding joint possession in one colony. Either they had lived there together since last year, or one of them must have swarmed out of a neighboring colony and peaceably accepted. The first supposition is perhaps the more easily believed.

C. DAVENPORT'S plan of waxing rubber bands on fruit-cans to prevent leaking, as mentioned in last number's Straws, has been tried at our house, and it doesn't work "in this locality." Wax cools and flakes off before it can be got in place. Some kink, perhaps, we haven't got hold of.

REPLYING to C. Davenport, p. 536, I don't know that I ever said it was necessary to have a section full of foundation to have the bees accept the bottom starter, for bees will accept —have accepted—a bottom starter when there was no top starter; but a bottom starter, I think, is very much more secure against toppling over if the two starters are so near together that the bees promptly join them.

STENOG says, p. 531, that Noah Webster shortened our spelling very materially in many ways, and then says, "I feel sure our common spelling will not be modified during the next century." Now, Stenog, how do you know the death of Noah Webster ended all hope of further mending? Or, do you mean that in this century our spelling will be so improved that it will not need to be modified in *the next* century?

IF FRIEND GILSTRAP wants his veil three inches longer, let him sew it to the outer edge of the rim of his hat instead of having it puckered around the crown. [Yes, that will fix it, sure enough; but while you are about it, if the hat is broad-brimmed, sew the veil inside of the outer edge an inch or so. This greatly improves the seeing qualities of the material, says W. L. Coggshall, for then the projecting brim shades it, preventing that disagreeable gloss or glistening that is sometimes so trying to the eyes.—ED.]

"TO PREVENT SWARMING, queen-cells should be destroyed in 9 days," says Question-box, p. 543 In 9 days from what? [The answer is a little incomplete, it is true. I meant, however, nine days either from the first swarm, or when cells are about nine days old. Assuming that some queens might hatch in twelve days, this would leave a leeway so that all cells could be cut out before any young queens could emerge.—ED.]

C. DAVENPORT, you've got me mixed up with some one else, p. 536, or else you've just reversed my practice. Instead of putting on supers as soon as colonies are strong enough, without regard to the flow, I put them on just when I think the flow is coming, without very much regard to the strength of colonies. But I don't believe bees spoil sections put on too early as much as they do those left on too late. Propolis is more plentiful in the latter case.

MR. EDITOR, referring to the picture of Draper's barn and the eight-frame hive, you say, "It will be apparent from the illustration that the difference is not nearly so great as one would imagine." I arise to remark that the real difference in capacity is greater than one who judges from the illustration would imagine. Allowing that the comb comes within ¼ inch of the bottom-bar, if I figure rightly, the comb surface in a "barn" is equal to 12¾ of the ordinary frames. Two barns hold *more* than three eight-frame hives.

"THE FACT of insect origin" of honey-dew "can not be doubted now. It's settled," say you, Mr. Editor, p. 542. Certainly, it's settled that honey-dew comes by means of insects; but isn't it also settled that honey-dew may likewise come without any insects? [Strictly speaking, there is no honey-dew except of insect origin; and, strictly speaking, we might say also there is no such thing as real honey-dew; that is, there is no kind of saccharine matter that falls in the form of a spray from the heavens, as was formerly supposed. But there is a sort of saccharine exudation from the leaves of certain plants that probably has no connection with any insects. But is this honey-dew?—Ed]

At one time I thought the bees were in for a crop of honey. But it has come in so slowly that some have made a little start in supers, and some haven't. At such times it seems to me it must be more satisfactory to work for extracted honey. [But you do not tell us, doctor, definitely, whether the season in and about Marengo is likely to be a failure or not. I take it that it will, as your only source is clover, and that is probably over by this time. From present indications the season over the country generally will be even poorer than that of last year, and we thought 1898 was about as poor as it could be. Comb honey—at least a choice article—ought to be sold at a higher price than it has sold for for several years past.—Ed.]

Mr. Editor, your demands are ridiculous, p. 545. You want a young lady to cut a limb from a tree, said limb having a swarm of bees on it, and said young lady then and there to have an unconscious air of ease and grace. Unconscious air after cutting down a swarm? Not much. If she's the girl I take her to be, a girl worth looking at in a frontispiece, there will be, after she gets possession of that swarm, a conscious air of flushed victory, as who should say, "I'd like to see a man do that job any better!" [All right. She can have a "conscious air of flushed victory," but she must not have "a conscious air" that some one is looking at her and admiring her. Such a state of consciousness, to my notion, is awful to behold in any one.—Ed]

A. J. Wright, in that article, p. 531, shows that he is a keen observer, and his observations are well worth consideration; but when he makes the startling statement that "many animals can see perfectly *only* in total darkness," and that there are "rays of dark" as something distinguished from rays of light, we certainly have a right to ask whether any other scientist believes or teaches any thing of the kind. Friend Wright, please tell us whether any other authority teaches that an animal may see in any way except by rays of *light* impinging on the retina. [I do not know enough about the question of light and darkness, or "rays of dark," to say whether Mr. W. is right or wrong; but I do know that he has demonstrated that some so-called scientists are clearly wrong in some of their "science;" but nevertheless he may be wrong on the subject of "dark rays."—Ed.]

As footnote to that item about the bee-escape, p. 545, let me make some remarks. As you give it, you must have taken it in a shower. It's never wet except by rain—possibly being wet wouldn't be a bad thing. It never fits tightly, but hangs loosely, although bee-tight, a very important feature being that it can be *thrown* on and thrown off, for it's put on the first super of the pile, and taken off and put on again every time another super is added. There's no cone in the case, but a three-sided pyramid, because easier made. I don't first shake bees out of super—can't. I smoke 'em out. (Have spoiled honey by smoking too much.) The thing is simply a robber-cloth with a piece of lath nailed on two opposite sides (oftener two pieces on each side), and the other two sides weighted down with shot in the hem, a triangular hole cut out of the center, and the pyramid sewed on. It can be picked up with one hand and thrown on; and while the pile is low I always kick it off to put on the next super. That's about all there is of it, but it's a very convenient thing for one who hasn't a bicycle and doesn't want to make an extra trip to put on Porter escapes. [If you are not the one who wets the cloth that hangs over the top of the hive, then it is somebody else, and that some person told me of this trick, I am positive. The point is here: Robbers, if there should be any such, hesitate about prying under a wet cloth; but if it be dry, on the other hand, they will squeeze under providing they have physical force sufficient to accomplish the act. Very likely, however, your four edges weighted down would, in practice, accomplish the result, if the skirts, as we might call them, have not been previously soaked in water. The kodak picture that I took of the device was not very clear, and I asked our engraver to make a pen-drawing showing a view which I knew would come up distinctly where a half-tone would be a perfect blur. That accounts for the cone showing instead of the pyramid.—Ed]

PICKINGS

FROM OUR NEIGHBORS' FIELDS.

By "Stenog."

The blazing sun, with fervent glare,
  Pours down its torrid heat;
The flowers wilt, the ground is bare—
  What have the bees to eat?

* * *

AMERICAN BEE JOURNAL.

The first page of the issue for July 20 shows a view of the apiary of Miss Ada L. Pickard, with the owner in the foreground. It is located in Richland Co., Wis. She managed an out-apiary of 100 colonies last year, and secured 16,000 lbs of basswood honey. This is an unusual record, and Miss P. certainly has a right to assume a "conscious air of flushed victory," as Dr. Miller gallantly puts it.

* * *

In speaking of king-birds, Prof. Cook says there are two kinds that are doubtless bee-eaters, and that they would doubtless eat queens as well as workers. They belong to the *Tyrannidæ*, among which is included our well-known beautiful little pewee, or phebe bird. In their own apiary he has seen the king bird dart down to the hives, but the stomachs of the birds were found to contain nothing but robber-flies, which are among the worst enemies they have. On the whole, Prof. Cook considers these birds more the friend of the bee-keeper than his enemy. This is good news to me, for I confess I have no pleasure in hearing of their destruction. Perhaps owls, hawks, and snakes will seem less hateful to us when we know more about their habits.

* * *

In speaking of the difference between dead brood and foul brood, Prof. Cook says: "This dead brood is not at all like foul brood, and any one who attends to the following description carefully will have no difficulty in distinguishing the one from the other: In this case the characteristic, most disagreeable *odor* of foul brood is wholly wanting; the sunken cell-cap, with its frequent perforation, is also absent. The dead brood is always in the form of larvæ, and never in the sticky, pasty, unctuous mass so characteristic of foul brood. We insert a pin and draw a decaying larva from the cell, and it is not a stringy or ropy substance that springs back when it lets go the pinhead, as is true of foul brood, on the whole, yet it often appears coffee-colored or a rich, dark brown, as does foul brood. The surest way to tell is in the character of the decaying substance in the cell. If the larva is always found, showing the form even in its decay, instead of the stringy, elastic, pasty mass, then it is not foul brood."

* * *

In speaking of the word "maroon," as applied to bees, Dr. Miller asks of Mr. Doolittle: "If you knew them to be maroon, while all the authorities, the books, and the bee-journals, were calling them yellow these years and years, will you be kind enough to tell us why you never mentioned it before?" As words expressing shades, such as ecru, maroon, subdued gooseberry, etc., are indefinite, why not compare one thing with some object with which all are familiar? For instance, lemons and oranges are so fixed in color as to be good standards. This morning I saw some bees on my pumpkin-blossoms, and their segments were so near the beautiful orange of the blossoms, in color, that the difference was hardly perceptible. It occurred to me then that here is a good thing to measure color by. Orange is a primary (rainbow) color, and is certainly nearer the color of Italians than lemon yellow. "Maroon," in bicycle talk, seems to call for a muddy purple. The bees in question on my vines belonged to the foreman of the job-printing department here. He keeps them on the roof of his house, about ten rods from mine. I never saw a happier picture than those bees in the bottom of those beautiful yellow cups, rolling in what was to them golden wealth.

BEE-KEEPERS' REVIEW.

The July issue starts out with a beautiful picture of a basswood limb, followed by an editorial article on this great honey-tree, now so rapidly passing away.

* * *

Dr. A. B. Mason's department is worth all the *Review* costs. His remarks relative to omitting addresses of correspondents meet my approval. In a somewhat facetious manner he settles the question thus: "The first time I saw that one of Bro. Doolittle's articles came from Onondaga Co., I wondered if he had changed his place of residence, and left his 'old stamping ground' at Borodino; and when I saw that our dear Prof. Cook had changed from Claremont, Cal., to Los Angeles Co., I unearthed a postal guide, and, to my extreme satisfaction, found that, like Bro. Doolittle, he was holding forth from the same 'home-nest' as before, and I sincerely hope that no more of our bee-journals will cease to give their readers the postoffice addresses of contributors."

* * *

C. Davenport tells how he sells honey at home. He touches on one point that I have often thought has been neglected — the local paper as an advertising medium for honey. Mr. D. relates how he sold 4000 lbs. of honey. He advertised 18 lbs. for $1.00, describing extracted honey as being free from wax and wood. He then authorized his banker to offer $100 for evidence showing that his honey was not pure. The result was, he sold all he had and 500 lbs. more that he bought.

* * *

Aaron Snyder writes about the drawbacks of Cuba as a honey country. He claims that Cuba is the best honey region in the world, but among the disagreeable features of that island he mentions the language, insects, fleas, jiggers, scorpions, snakes, etc., all of which Mr. Poppleton has described in these columns. Quite likely these pests will not deter the average American from going to Cuba provided the honey is there, for they will rapidly disappear before American genius.

* * *

F. L. Thompson's "Notes from Foreign Bee Journals" is an important and valuable feature of the *Review*. I fear but few realize the amount of work necessary to produce so good a result. It shows at a glance the latest conclusions in that hotbed of mental activity, Central Europe. Why honey keeps better by being boiled is thus explained in a German bee-journal: "Although the formic acid evaporates, the albuminous ingredients, which are what cause fermentation, are also separated in the foam."

CALIFORNIA ECHOES

BY J. H. MARTIN.

According to Straw upon page 421, Dr. Miller has remarkable hens. He really conveys the idea that his hens hatch chickens from onions. No lice on those birds.

Dr. Miller's intellectual machinery must be out of gear if he can not see the difference between Indian and squaw. Indian conveys the same idea to me as German, Celt, etc., while *squaw* is a degrading personal epithet. Do you see, doctor?

In the *American Bee Journal* Mr. Dadant thinks bears are deterred from robbing bee-hives by the fear of stings. Bears are not built with that sort of fear in this western country. Bears make sad havoc with an apiary in this State, and never let up until they have filled themselves with honey. Possibly Mr. Dadant was thinking of French bears. Of course, they are not so aggressive as American bears.

Mr. Brodbeck and I have been sort o' neighborly and sociable this season. He moved his bees into an adjoining canyon, within easy visiting distance, with some hopes of securing a little honey. But his hopes are blasted along with the rest of us, and I think they are a little blasteder, for he is not only minus a honey-yield but minus one of those bull-terrors. The poor dog fell into a reservoir and was drowned. It is supposed that the dog, being old and feeble, and his tail becoming so animated at the sight of water, it wagged the body into the reservoir.

It is of no use for Prof. Cook and me to be hopeful about getting a honey crop in Southern California. We hear of but two carloads being shipped, and those from a few favored localities. Even where circumstances were favorable, the fogs were so numerous and cool that the bees could not work to advantage. Our only hope now near the coast is a yield from sumac, which is coming on very full of bloom; but we have discovered that, to have a honey-plant fulfill its mission, it must have the moisture below as well as right conditions above. We hope, however, something from sumac.

News comes from that man Wilder in Northern California that he has shot two bears and a buck, and the end is not yet. His prospects for a honey crop are not flattering; plenty of flowers but weather too cool. Barring the bears, the same news comes from Mr. Littooy, of Tacoma, Wash. It rained all the while when I was there in November. It has dropped off now to raining every other day; but that is a little too much for the successful honey-gathering. Central California complains of a shortage of the honey yield, and, taking it all together, there will not be honey enough produced on the Pacific coast, from Mexico to British Columbia, to supply the home markets.

I clip the following from a paper published in my native State, New York:

> The Tripp bill, defining the sizes of small-fruit packages, has become a law. It provides that all manufacturers of small-fruit packages, such as quarts, pints, and half-pints, that make or cause to be made such packages that are of less size or capacity than the standard sizes, as defined in section one of this act, shall mark such quart, pint, and half-pint with the word "short" on the outside in letters not less than half an inch in height.

Then follows the penalty. How about sections of honey that are short? I know of some parties who use that style of section, and advocate the sale by section; but even in this way of selling, the purchaser thinks he is getting a pound. Taking all things into consideration, is it not better to stick to the full-pound section rather than be compelled to by law?

GENERAL CORRESPONDENCE

NIVER ON THE WITNESS-STAND.

Grading and Marketing: Valuable Pointers from a Practical Man.

[In our issue for June 15 I referred to the visit of S. A. Niver, and to the fact that one of our stenographers, "W. P." had taken down in shorthand an extended conversation that occurred between Mr. Niver and myself. Knowing that our friend was full of good practical "bee-talk" I took occasion to draw him out on various subjects on which he was familiar, especially on the matter of grading and marketing. While we were in "Ernest" conversation "Bob" snapped the camera at us just as we sat before my desk. Without further introduction I'll give the dialog (the first installment of it), just as it took place between us, beginning at the very start, when he came into the office.—Ed.]

E. R. Root.—Well, well, well! where did you drop down from, S. A. Niver?

Mr. Niver.—Why, I just took a run over from Mantua Station, Portage Co., Ohio, on my wheel.

R.—Ran over? Why, how far is it?

N.—About fifty miles.

R.—Fifty miles? Why, how old are you?

N.—It seems to me that is a leading question. I have not reckoned up lately, but I was born in 1847.

R.—Well, sit down. You must be tired.

N.—Your Ohio roads have a good deal of road to the mile.

R.—But we have not the hills you have, anyhow.

N.—I would rather have hills than sand and clay and hills too. Well, how are things going on here?

R.—Oh! we are all as busy as can be. Have bees wintered fairly well?

N.—There is an average loss of 40 per cent thorughout our country.

R.—Forty per cent! My, oh my! How did Coggshall come out?

N.—He told me that he had 3000 pounds of honey that he had extracted from combs of defunct colonies.

R.—Extracting from dead *bees!* Who ever heard of the like?

N.—Buckwheaters. By the way, that word accounts for a great many of our peculiar notions. We buckwheaters can not manage bees as you people do who have no buckwheat. It brings many new elements into it, and we must take them all into consideration.

R.—You mean, I suppose, that he extracted from dead *colonies.*

N.—Yes. Our bees, you must remember, go into winter quarters heavy with buckwheat honey, loaded clear to the brim — or at least nearly always. If a colony dies from any cause whatever, there is a large supply of buckwheat honey left in the brood-chamber. That honey is really some of the best, because it is so ripe and so good.

R.—But I should have thought he would have wanted to keep these combs for raising bees in the spring, instead of extracting.

N.—After we strike the soft-maple bloom there is nearly always something coming, clear through to the first of September. If the weather is favorable, bees breed very rapidly because honey comes in constantly.

R.—Oh! you are buckwheaters, then, I see. You don't need to have a lot of honey in the combs from springtime till fall. Is that the idea?

N.—If we can get a colony through till soft-maple blossom in the spring, it is all we care for. After that they can take care of themselves. Well, what did you hear about the grading-rules?

R.—Your general scheme of grading is pronounced all right, with one exception; that is, that perhaps you did not allow enough difference between No. 1 and fancy.

N.—I wrote you, when I sent you the photos, that they did not show the same difference that the sections themselves did.

R.—Yes, that was apparent from the photos.

N.—If any one will take the pictures and hold them off at arm's length, he will see that there is difference enough. The fancy is enough heavier to make the difference.

R.—Then the real distinction between the two was weight, was it not?

N.—Yes.

R.—Fancy was, perhaps, a little darker in cappings, and that was why so many seemed to think No. 1 equal to your fancy.

"Is it not possible in some way to get it into your head that this grading has nothing to do with *quality* or *color?*"—*S. A. Niver.*

N.—But is it not possible in some way to get it into your head that this grading has nothing to do with *quality* or *color?*

R.—That was clear enough to me, but perhaps not to others.

N.—Those three pictures I sent were all alike of buckwheat honey, all of one color.

R.—What do you think of having an *extra* fancy, say four grades in all?

N.—What is the good of that?

R.—Why, there is some honey that is sealed clear out to the wood, clear around, or nearly so; and now why not have just one notch higher?

N.—In one hundred cases, how many cases of sections would you expect to find of that kind?

R.—Perhaps one or two.

N.—Well, doesn't that answer your question—that it does not pay to fuss with such a little amount?

R.—I don't know. If I were to get two cents more for those two cases, this would—

N.—Confuse people with another grade—that's all.

R.—Well, perhaps you are right.

N.—Now then. Three grades—fancy, No. 1, and No. 2; three qualities or colors of each kind—white, mixed, and buckwheat, makes nine grades. I think that is all we can ask people to keep track of—our merchants, commission men, or producers.

R.—Perhaps you are right; but somehow I have a sort of lurking feeling that I should like to have a place for those fancy fellows that are filled clear out to the wood all around.

N.—All right. That one case that you can get out of your whole crop, take it home and eat it yourself—don't try to sell it.

R.—Why not?

N.—You need it in your business at home.

R.—How so?

N.—Why, if you select a *little* lot that way it makes one more element to confuse the grading-rule and result in a dollar profit per 100 colonies. Simplicity is what we want more than any thing else. Our rules have been so complex that nobody has been able to follow them. I see that J. E. Crane, on page 126, Feb. 15, has three sections. There is one fancy. You can not call it *extra* fancy, but just *plain* fancy.

R.—Now, I would call it *extra* fancy—that is, if you have that grade.

N.—Well, perhaps it would go for the poorest of the extra fancy; but in the middle one is where the money lies.

R.—Why so?

N.—If I were producing honey strictly for my own pocket-book, to fatten my purse, so to speak, I would try to produce honey, every card of which is like that, and never *one* like the extra fancy.

R.—Explain yourself a little further. I do not quite get it through my head.

N.—Simple enough. To get that extra fancy you must crowd the bees for room until they store every corner full. They will not produce more than half as many boxes, and finish them like that extra fancy, as they will of the other, and I can get more money for the poorer style and the greater number of boxes.

R.—Do you mean more per *colony?*

N.—Yes, per colony.

R.—You said, a moment ago, if you were running your bees to fatten your pocketbook you would try to produce sections like the one shown in the middle; then you imply that the consumer has some rights in the matter, by the way you put your proposition. Now, then, if you were producing honey for your uncles and aunts, which honey would you produce for them?

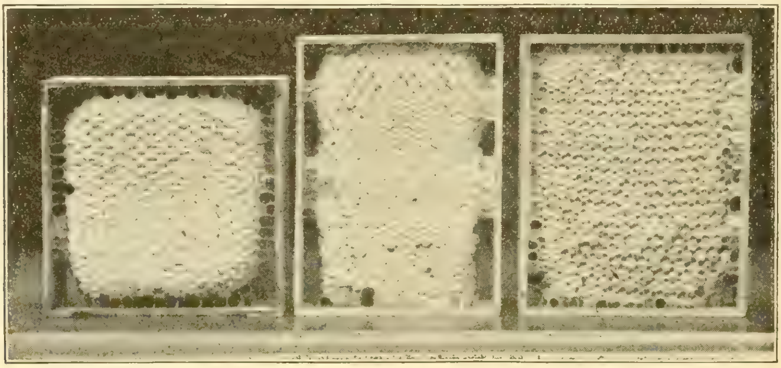
N.—If I were producing honey for my uncles and aunts, for the table, I should prefer some like that square section in the picture, and you will have a clean nice piece on the plate, while the fancy will be smeared on all sides on account of cutting full cells next to the wood.

R.—Why, Niver, you would not go back to the 4¼ sections, would you?

N.—Oh, no! I called your attention to this picture as an illustration. No. I want the long box for many reasons.

R.—You mean that you would prefer the long box filled like the 4¼ in this picture, with the cells unsealed next to the wood. Is that your idea?

N.—Yes, for my eating I would; and I believe I can get three boxes filled like the middle one, where I can get one like that shown at the right, averaging it through the apiary. Three boxes like the middle one in the picture will sell for 30 cents while that one at the right will sell for 15. Figure up your money. It will cost a little more to make the three boxes; but we have quite a margin, you see, to come and go on.



"The retailer finds it much easier to sell the middle box at 10 than the right-hand one at 15."—*S. A. Niver.**

R.—Do you really mean to say that you can produce three like the middle one where you can produce one like the right-hand box?

N.—Well, let us see about that now. Perhaps that is a little too strong a statement; but with comb in sections not exceeding 1¼ inches in thickness, we can very nearly do it through the whole apiary; perhaps not quite, but close to it. You can get boxes like this by tiering up rapidly during the fore part of the honey-flow; and under favorable conditions they will cap and finish sections like this sooner than you can make them finish the fancy. And right here let me call your attention to the buckwheaters' advantage over you "single taxers" (meaning *all-white-honey* producers). The first flow that shows up in our sections will be that lovely red raspberry — rarely enough of it to more than color the center; then white and alsike clover and basswood. We are not put out by having a large lot of half-finished sections at this stage of the game, for we confidently expect all such to be finished with a rich border of buckwheat honey, making our "Fancy Mixed" brand, which commands as high a price as the "Fancy White." We can spread out as much as we like in the early part of the season, reserving our caution for August 20.

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*Cut re-inserted for the convenience of our readers.

R.—But, see here, Niver. The honey that I saw at Morton's would grade higher than the middle box you are talking about.

N.—But, brother Root, you must remember that Morton did not work for Morton's pocketbook entirely, but he worked to obtain the highest results possible, as an *artist;* and you know how freely he gave the results of his experiments to the fraternity. The pocketbook was with him a secondary matter; and his motto was, "The best is none too good."

R.—Then he did not run to fatten his pocketbook, but to benefit his customers.

N.—It was a pride with him to get the very best possible results, and the box at the right was what he aimed for all the while. Another thing, the retailer finds it much easier to sell the middle box at 10 than the right-hand one at 15.

Concluded in next issue.

* * *

DRONE-CELLS VS. DOOLITTLE CUPS.

The Barber Method of Producing Comb Honey.

BY W. C. GATHRIGHT.

I was intending to keep still; but when you say, on page 458, in regard to raising cells in a hive containing a laying queen, that "without artificial cups nothing could be done," I can not keep quiet any longer. I have been raising cells by the Doolittle plan for three years, in upper and lower stories, with the laying queen in the hive all the time. I have not made an artificial cell for two years, and would not think of going back to that plan. I use strips of drone comb with the cells cut down half depth, and place a larva in every other cell. This gives room to cut them apart. I often get every cell accepted, and as many as 22, though I destroy all but about 12 or 15. I make a frame with top-bar and ends only ½ inch wide, and do not put on a bottom-bar, but put in a bar about ⅜ square, half way between the bottom and top. This middle bar is to fasten the strips of drone comb to.

I next cut my drone comb in strips about ⅜ wide and 4 inches long. I use three pieces for each frame. To fasten them to the bar I use melted wax. I dip each piece into the wax, first letting the edge of one side touch the wax, when it is placed on the bar, and it is fixed perfectly solid in a moment. I can fasten a strip of drone comb in the same time it would take to fasten one artificial cup. This, I believe, is the same plan given by H. L. Jones, of Australia, some time ago in GLEANINGS.

As stated above, I have used this plan for two years, and with perfect success at all times, from early spring till late in the fall. Before I began using the strips of drone comb I used the artificial cups; but I have been much more successful with the drone comb than with the cups, and it is so much less trouble to prepare the strips of comb that I would not think of fussing with cell-cups.

It seems the Barber plan of using shallow frames in comb honey, supers to get the bees started working above, is gaining favor rapidly. No doubt many were working along the same line at the same time. In an article in the *Progressive Bee-keeper* for Jan. 1, 1898, I recommended this plan of getting the bees started above; also in GLEANINGS, Nov. 1, 1898, I recommended this plan to Dr. Miller (see his comments in that number).

My experience in using bait sections is the same as Mrs. Barber described in June 15th GLEANINGS. If the season is poor they fill the baits and leave the other sections untouched.

This season I filled supers full of drawn comb the same as I had been using as baits before. I do not practice using the shallow frames above sections. I can use them another way, which is more profitable to me. After they are partly filled, and the queen has filled a few of the central combs with brood, they are taken off and placed on those not yet strong enough to work in supers. I thus keep on till all are strong and working above. When the supers are taken off and the honey extracted, the combs are put away until the fall flow of dark honey, when they are put on the hive again in place of the section supers.

There is one point just mentioned by Mr. Louis Scholl (page 431) that needs more emphasis. When a set of shallow frames are placed on the colony just before the flow, the queen will occupy all the cells below, clear up to the top-bar; whereas, if no combs were given them above there will be 1½ to 2 inches of honey stored between the top-bar and the brood, which is the case every time, in this locality at least. It is the point so often emphasized by Mr. Doolittle, that, if the bees once get to storing below, it is hard to get them into the notion to go above; and, by the way, this seems to be the strongest point against deep frames for comb honey.

Dona Ana, N. M., June 23.

[If you have a method by which you are getting drone-cells, as you describe, started into *queen*-cells, in a single-story colony having a good fertile queen, you have done what no other queen-breeder has accomplished heretofore. H. L. Jones, J. D. Fooshe, and others who use drone-cells in lieu of queen-cups, are obliged to put these strips of drone comb *first* into a *queenless* colony to get them *started;* then when "once started" they can be transferred to colonies having fertile queens.

Well, now, *if* you are obliged to put these drone-cells into queenless colonies to get them started, I do not see how you save any labor over the method that makes use of Doolittle cell-cups, the same being placed directly in a hive having a queen.

Is it not possible that you have not learned how to make Doolittle cell-cups rapidly? The man who rears our queens has no difficulty in making them at the rate of 1500 a day, and with proper appliances they can be turned out at the rate of several thousand a day, and the work all done by a cheap boy or girl.

Now, if you do not get around the use of queenless colonies, I hope you will tell us in the next issue of GLEANINGS just how you do it. By the Doolittle method of using cell-cups, it is not necessary to have a queenless colony in the apiary, except during the time the ordinary virgin queen takes to become fertilized, and even then, under some circumstances, these young queens will sometimes take their wedding-flight from an upper story of a colony having a good queen below.

But there are several points in favor of the Doolittle cell cups: The cells are more regular, easier to put into queen-cell protectors, and they are less liable to be damaged in handling. —ED.]

APIS DORSATA.

Bee-keepers of Australia After Them; Length of Tongues of Dorsata.

BY H. L. JONES.

I note in GLEANINGS that you are now making renewed efforts to introduce *Apis dorsata* into America; but as you already have been on this same trail for some 20 years I reckon we shall get ahead of you unless you accelerate matters considerably on your side. As far back as 1878, A. I. Root offered $100 for a single colony delivered to him; but no one succeeded in obtaining the prize, and now you are offering $25 for a single queen alive. You think it will be a joke if GLEANINGS gets ahead of the government in securing the big bees; but I'm sure it will be a bigger joke if we get ahead of GLEANINGS with its 20 odd years' start.

By this mail I am sending you sample workers of *Apis dorsata* that I received from a customer of mine (a practical bee-keeper) who left this colony a short time ago, and is now domiciled in the Malay Peninsula, right where *Apis dorsata* abounds. I have just shipped him four colonies of Italian bees, with more to follow; and if he finds that dorsata can be domesticated he will return some colonies in those specially constructed shipping-hives. The sample bottle that I send you contains four *Apis dorsata* workers and one *Apis ligustica* that I put in for the purpose of comparing sizes. My correspondent thinks they can be domesticated, and I herewith quote a little from his letter, which I think will be of interest to you:

> I return by this mail your mailing-bottle, with samples of native bees here; but I am not qualified to say whether they are *Apis dorsata* or not. I think they can be domesticated, but it is very difficult to get them. I have already expended about $9.60 hunting after them and paying natives to allow me to take them from trees near their houses; but when I return with ladders, etc., to take them, I find that they have been smoked away with torches on long poles. Whether this is done for the honey or through some superstition I can not say. As these bees attach their combs to top branches of very high trees (probably because they are hunted so much by Malays), and generally to very thick branches, it is no easy job for one man (I know of no other man here, either European or Asiatic, who will go near bees) to get up so high and cut the branch and lower it, and then carry it home; however I hope to succeed if I can find them on accessible branches. I would cut the branch the same length as a top-bar if possible, or of a length that would fit some box, and then fix a cover about a foot above the box, and gradually lower it after about a week, leaving an entrance above as well as below for a time; then I would put a frame with a starter on each side of the bees.
>
> There is a smaller bee here, something like a dwarfed Italian, but it is said to be not a very good honey-gatherer.

Now, friend Root, I should like to have you examine these bees minutely, or pass them on to some expert so that the relative length of the tongues of these and *Apis mellifica* might be ascertained. According to some measurements made by Mr. F. W. L. Sladen, of Ripple Court, England, and reported in GLEANINGS, 1897, page 487, the tongue of *Apis dorsata* is scarcely any longer than that of our ordinary bee; and if such is really the case it might not be advisable to introduce them, even if they could be domesticated and their migratory instinct overcome. To my unaided eye, however, their tongues seem much longer than those of our common bees.

As soon as I learn something definite regarding the value of these bees from a commercial standpoint I will write you further; and I also trust that I shall then be in a position to scoop that twenty-five-dollar bill.

Goodna, Aus., May 6.

[All right, friend Jones. If you bee-keepers of the southern hemisphere succeed in getting dorsata into civilized beedom before we do, we shall rejoice with you, and at the same time have the satisfaction of knowing that, *if* they have bad traits, *you* will pay for the experiment and *we* will get the benefit of it. However, if we can get them before you do we will take our chances.

I have just been comparing the specimens of dorsata sent by you, and those sent by Mr. W. E. Rambo, of India. Those from the latter look much like very large five and six banded Italian bees; while those you send have less yellow on them, are somewhat of a bluish cast, and are, I should judge, slightly smaller. They are evidently dorsata, however, but may be a different variety, just as we have varieties among the *Apis mellifica*.

With regard to the tongues of the dorsata, bees, as soon as placed in alcohol, have a fashion of pushing out their tongues to their fullest length; and it is evident that the specimens of dorsata sent us did that very thing. I may be mistaken, but their tongues do not appear to be any longer than those I have seen on red-clover Italians.

Cheshire says something about the wonderful harmony in nature; that the tongues of bees are adapted to the length of the flower-cells as we find them in the vegetable kingdom. Is it possible that the tongues of the different species of honey-bees are of very nearly the same length for that reason? One of the chief things that have been claimed for dorsata is that it would have a longer tongue, and this inference seems to be drawn from the fact that the bees are larger, and therefore the tongues would bear a direct proportion in length. If Sladen's measurements are correct, there would seem to be but little in this. I will gladly furnish a dozen specimens of the dorsata to any professor of a college or other competent person having the necessary micrometer scales to make the measurements.—Ed.]

SCIENTIFIC BEE-STINGING.

How it Feels to be Stung 150 times; an Interesting Account of a Painful Experience; Frames Shallow vs. Langstroth Frames; Hoffman Frames; Big Hive, Big Frame, Big Extractors vs. Small Hives, Small Frames, Small Extractors.

BY W. A. H. GILSTRAP.

In May 1st Gleanings, p. 361, is the sentence, "Could the bees have been turned on the tormentor of the faithful old horse it would have been a pleasing feature of the program." To me the sight of bees stinging even such a man would not be pleasing personally; but there is so much in his suggestion, from a scientific standpoint, that it certainly should not be treated lightly.

To start with, we care less about the scientific aspect of horses than of people; that is, horses are not such interesting subjects as human beings. Then man has a finer nervous system, and the stinging of bees would probably act quite differently with him. But man's chief advantage is that he can tell you how it feels as it goes along. A good doctor should make note of this at once, for the subject is liable to forget. If a colony with any vim is used twenty minutes, a man bent on suicide should be requested to act as bee-tormentor, for it would certainly prove fatal to man or horse.

Contrary to my wish, I have had some experience along that line. When loading bees on a wagon, with the team hitched to it, a hive "sprang a leak"—not a strong colony, but how they did come out! Having no good Corneil smoker, of course I had to unhitch; for to leave the horses to be stung was out of the question. To free jumping, kicking horses is no easy or quick task. All the time the bees were using my head for a pin-cushion. At the first my hat fell off, or was knocked off, and the bees seemed to think the hair of my head was the only place about me worth settling on. Soon all individual stings were lost track of. The poison deepened and thickened, it seemed, giving my head a numb sensation, the actual pain diminishing considerably, though the scent was sickening.

The horses lost no time in getting to a spring about 200 yards from the wagon, where I stopped them. My next move was to wet my head with cool water. Was that a mistake? After tying the team to trees I sat down on a rock to rest, for I was quite faint. External swelling was less than one sting sometimes produces. Inside my head the swelling was distressing, causing my sight to fail entirely at times, it seeming that my eyes would be pushed out of their sockets. Itching all over my person was intense. There seemed to be a stream of suffocation extending from my throat to my heart, which threatened to stop the latter organ from working. These terms may not be correct, but they are the best in my vocabulary. I went to the house, a few rods away, lay down, and soon went to dozing. In two hours I could go to work, but did not feel well for several days.

My brother, a lad at the time, was a witness, and he never questioned my estimate of 150 stings in about half a minute, so far as I know. If my experience is worth any thing, death from bee-stings is not extremely painful. Perhaps some one has experimented further, and can show my mistake. Can a horse tell?

If you wish to know the effect of stinging on the bees, try buckskin gloves for them to sting.

Should a "gentleman" of "high moral standing" have a horse severely stung for little or nothing more than idle curiosity in this country, he would probably find proceedings commenced against a heartless criminal. To say less would not express my full view, but I do not blame the editor for thinking well of the man.

A correspondent wrote me recently, asking: "1. How would you like a twelve-frame hive, same frame as Langstroth, except two inches shallower? 2. Why? 3. Why not? 4. What hive is better? 5. Why?"

As the questioner reads Gleanings, it may be well to answer him through its columns:

1. If you mean an apiary of such hives it would certainly suit me very well. To have several kinds of hives, especially frames, in one place, makes many extra steps, and is a canker on an apiarist's time, and therefore on his income. The hive mentioned is certainly good for either comb or extracted honey. For comb honey it would be a good hive by contracting and expanding intelligently. It has been truthfully said that expansion is the better part of the contracting management. But as I shall not likely use many sections soon, we will regard it as an extracting-hive.

Because it is an odd-sized hive I shall assume it is not very well made. Very few are. Regular goods are frequently poorly made. A supply-dealer who makes many hives wanted to buy a hive made by a competitor on this coast, saying he had several Eastern hives, and the hive in question was the best he ever saw. The super was well nailed, and some bee-keepers present noticed that, when it was placed on a table, one corner would remain half a bee-space above the table while the other corners touched.

If the frames are Hoffman style, which have been so popular since 1891, I could soon remedy that defect with a sharp knife or plane by removing the end-bar projections. One season, with 70 Hoffman hives (eight-frame L.), in which I many times felt like kicking the frames out because they seemed determined not to be pried out, may not be a fair test.

2. Because the frame is small enough for ladies to handle, and also large enough to contain considerable honey or brood. If the bottom-bar is ¼ inch thick, and the top-bar ⅝, the comb surface is a trifle more than the Dadants use for extracting.

4. In my opinion the ten-frame Langstroth is better.

3, 5. With top and bottom bars, as above indicated for each frame, 13 of the frames you speak of would hardly contain as much comb surface as 10 L. frames. The latter are not too heavy for me to handle, and I certainly do not need to handle so many to accomplish a desired result, which is quite a time-saver. The L. frame is cheaper, as there are fewer pieces to make. It is easier to lift, as you can get your load nearer to you. To a man who wants the hand-holes in the side of the hive, this advantage may not be apparent. They load to much better advantage in an ordinary wagon. The lid is not so apt to leak rain, nor the bottom to leak bees, as the broad hive would be. The corners are not so apt to give way in a few years with the L. hive as with the broad shallow one. If I should want to sell them there are five men who would prefer the L. hive to one who would prefer the other kind.

However, I have no desire for a large frame like the Dadant or the France "shot-tower" frame. I used to want every thing big. A few months with a big horse convinced me that one of an average size is worth more to me. A few years' experience with a six-frame extractor has cooled me down in that line, and next month I shall get a two-frame machine. For three years I have had a little wife, and I would not now trade her for any jumbo in the State.

Grayson, Cal., May 12.

[I infer that our friend Mr. Gilstrap has had an unpleasant experience with the Hoffman frames. These he refers to doubtless had the old-fashioned top-bars, and there is no denying the fact that in some localities they were very difficult and unpleasant to handle; but any one who has these old-fashioned frames can very easily convert them into the new style, with suitable end-spacers.—ED.]

* * *

TRAVEL-STAIN.

Do Bees Have Dirty Feet?

BY A. J. WRIGHT.

Hardly an issue of GLEANINGS but has one or more articles on travel-stain. I believe the expression as applied to the cappings of comb honey to be practically a misnomer. A honey-bee with dirty feet! Why, bless you, no! They are the cleanest little fellows imaginable. I dare say they wash a hundred times where you do once, and then you call them dirty? Didn't you ever see a bee "making its toilet"? Well, it's worth your time. First it washes its hands thoroughly, then its face, then it passes its hands over the top of its head, washing that; also the back of its neck. Next its body is gone over, and finally it carefully finishes by washing its legs from its body clear to the soles of its feet; and now after this thorough renovation do you *dare* call it dirty?

I think somewhere in the A B C of Bee Culture occurs the statement that "bees have a fashion of running through their apartments with muddy feet." Now, this *must* be a matter of "locality." My bees never do that, but, on the contrary, take a great deal of pains to have their feet clean. Pick up a bee by the wings, and put its feet into mud or any other sticky substance, and the first thing it will do after being liberated will be to clean up.

Now, if you want to find out whether the so-called travel-stain is due to the dirty feet of the bees, try the following experiment: Take a board of any convenient size, not less than ten or twelve inches square, and, after thoroughly washing your hands, tack a piece of clean white paper on this board, and place it, paper side up, in front of a strong colony. Do this when plenty of honey is coming in, and the bees are working in the sections. Place this paper close to the entrance of the hive, so that the bees will use it as an alighting-board, and be compelled to travel over it with their dirty little feet. If you are *sure* that your fingers are clean, handling the board by the edges, and will put the board out late enough in the morning, and take it up at night before any dew falls, you will find this paper, so far as the bees are concerned, as clean and white at the end of a long honey-flow as when you first placed it before the entrance.

Where, then, does this so-called travel-stain come from? It is quite difficult to state a disagreeable fact in an agreeable way; and about the only palliative method that I know of is to include one's self in the statement, so here goes: So-called travel-stain has its origin mainly in the dirty or neglectful habits of *us* bee-keepers. If the bee-keeper wishes to have nice white sections of honey, he must, at the time of putting on sections, remove the old bottom-board and put a new one in its place. The stained appearance of cappings is due almost entirely to the admixture of foreign substances, and these are obtained to a great extent from the dirt and litter of the bottom-board. Keep every thing in and about the apiary neat and clean, and you will have no cause to complain about stained cappings.

But some one asks, "Why do cappings of finished sections that are perfectly white become darker if left on the hive?" It is because bees are usually doing something; and the honey-flow having ceased they use the refuse of the bottom-board, and thicken the cappings. Some one has said that the bees daub propolis over the capped sections. Well, if I had a colony that would do this I would kill the old queen and give a new one. Isn't there some other word that, in justice to our friends the bees, can be substituted for travel-stain?

I note that we are to have a new edition of

the A B C of Bee Culture. I wish this word "travel stain," and the "muddy feet of the bees," could be revised out of it in some way.
Bradford, N. Y.

[In the new edition of the A B C book, under Comb Honey, there is a newly written article on the subject of travel-stain. I have endeavored to cover in this the main points that were brought out in the recent discussions on that subject, especially the fact that, in the generality of cases, the coloring or foreign matter goes clear through the cappings. I do not relieve the bees of *all* responsibility of having at times dirty feet. I have seen entrances of hives that were pretty badly smeared up with yellow, and have naturally concluded that this yellow was the so-called travel-stain that came direct from the bees' feet. While I have not tried the experiment with a sheet of paper, yet if left there I should expect it would in time be somewhat discolored. We will try the experiment in our own yard, and report the results later.—ED.]

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A CASE OF BEE-FEVER.

How to Put Energy into a Slow Poke of a Horse; Closed-end Frames; Queens from Different Breeders.

BY E. W. BROWN.

Concluded.

The season last year was a poor one here as well as in most parts of the country; but with my 40 colonies, and 10 not mine, I produced 3 tons of honey, mostly comb, in plain sections, and increased to 60 full colonies and 5 weak ones. Of course, I had a fair fall flow. When I saw all this honey coming in I began to wonder how I could dispose of it. Dr. Miller says there are two things that bee-keepers are most interested in; 1. How to get a crop of honey; 2. How to get rid of it. I soon decided how I would get rid of my crop. I looked around till I found the best ten-dollar horse in the county. It had but a single fault—it wouldn't go. It would "whoa" better than any other horse I ever saw. After I bought the horse the former owner said that it was just a little inclined to be lazy. Perhaps electricity would be indicated in this case, I thought; and so one day I proceeded to attach concealed wires to the harness in such a way that I could, by pressing a button in the wagon, give the horse a mild electro-stimulus under its tail from a medical induction-coil run by dry batteries. This arrangement proved to be a great success, and it increased the value of the horse 175 per cent. I can now overtake and pass any thing on the road, to the great astonishment of the people who know the past record of the horse. One touch of the button furnishes sufficient ambition for a mile journey. I now seldom have occasion to touch the button, for the horse is nearly cured of its loss of ambition. When I speak it gives two switches of its tail and away it goes. I have made good use of this horse in disposing of my crop; and as I now have an out-apiary four miles away it will be a valuable help to me this coming season.

So far this season I have lost three colonies from diarrhea. These colonies did not have the ends of their combs closed, as I have explained. Some experienced bee-keepers (among whom I can mention James Heddon) take no stock in these "bee-heat" theories; some others (among whom I can mention Capt. J. E. Hetherington) believe that closed-end combs are of considerable importance, in our latitude at least. Some of my colonies which are on closed-end frames are packed in chaff, and these bees show no signs of weakness or diarrhea whatever, in spite of the fact that this has been an extremely severe winter for bees. I use cork-dust cushions on the top-bars, with plenty of ventilation above the cushions, and leave a ⅜ entrance open the full width of the hive. Other things being equal, those colonies with the greatest space under the frames lose the fewest bees.

Now, there is another class of intelligent apiarists (Dr. C. C. Miller among them) who "know" that closed-end frames are best for the *bees*, but "don't know" that they are best for the *bee keeper*, all things considered. Perhaps after I have had more experience I "won't know" any more about it than Dr. Miller; but at present I have so much faith in closed-end frames that I am going to have all of mine made that way until I learn that it is better not to have them thus.

Perhaps a good cellar is the best winter resort for our bees; but not all of us have access to suitable cellars; and then there are such men as C. P. Dadant, with hives weighing less than half a ton, who *must* winter outside.

Speaking of large hives reminds me of my own experience. As I have had but a *limited* experience with 8, 9, 10, and 12 frame hives, and as I am afflicted with bee-fever, my advice is, of course, valueless; however, if you want to know what size I think is best for comb honey I will tell you. Eight combs are too narrow; ten combs are too wide; nine combs are just right. I am inclined to believe that the L. frame is at least an inch too deep for a 9-frame hive. The depth of the frames has nothing to do with the wintering problem unless you go to extremes either way. What appear to be the healthiest colonies I have this winter are in brood-chambers six inches deep.

I have received queens from twelve different breeders. I find that there is a difference in them — in the queens and in the queen-breeders. What seems to be the best queen is from a breeder for whom I have no respect. The queen came hundreds of miles by mail, and cost $1.00 three years ago. Her bees cap their honey *very* white; they are exceedingly gentle; *they waste no time gathering propolis;* they have never swarmed; they are fair to look upon; and last, but not least, they have always produced a little more surplus honey than the best of the other colonies. Where's Doolittle? Say, Doolittle, is this queen not worth $10? I think it was 185 pounds of honey that I took from her hive last year; 150 of it comb honey all in plain sections.

Last season I noticed that this queen had but very little brood in the hive at the close of the honey-flow, and I am afraid she will be superseded this coming season (she is clipped, so I shall know). I want to get another batch of queen-cells from her eggs, and then I should like to exchange her with Doolittle or somebody who can use her. I wrote to the man from whom she came, asking if she was a hybrid, or if she was of a pure race and would be suitable to breed from. He answered my letter, but entirely ignored my question. There seems to be a good deal of mystery about this man, and I have no use for these mysterious people with their wonderful secrets.

I must be wandering from my subject. I was writing about bee-fever, and I guess the thoughts of it brought on an acute form of the trouble. You see I have it pretty bad yet. Just think of it — when my wife wishes to get my attention to tell me something she generally finds it necessary to exclaim "Bees!" Is there no help for me, Uncle Amos?

Eden, N. Y.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE

BEES — HOW LONG DO THEY LIVE?

Question.—Picking up a paper recently I noticed an item to the effect that bees were very short-lived insects, and that the average life of the worker during the summer season is but thirty days. Can this be the truth? I had supposed that workers lived six or eight months, if not a whole year.

Answer.—It seems to me that no one should be ignorant on this subject when one experiment will tell him the truth in the matter, and convince him that the average life of the worker is about 45 days, or one-half more than was given in the item which the questioner alludes to. Take a colony of black or German bees, for instance, and about the 10th of June take the queen away and introduce an Italian queen, keeping record of the date on which this change was made. In 21 days the last black bee will have emerged from its cell; and if the Italian queen went to laying immediately, the first Italian bee will have made its appearance, which fact should be jotted down also. At the end of 45 days from the time the last black bee came out of its cell no black bees can be found in the colony. At 40 days many will be seen; but they grow less and less each day, so that on the 44th it will be very few indeed that are left. This is for the summer months, but does not apply at all for those of the fall, winter, or spring. The life of the bee seems to depend on the work it does. Thus, when it labors the most its life is the shortest. Hence it comes about that, through the inactivity brought on by the advent of cool and cold weather, the individual bee can live from six to eight months. This is proved by changing the queens as before, only it is to be done this time about the middle of September. Soon after the first of October the last black bee will be out of its cell; but I have often found black bees in such colonies on the 1st of June of the next year, and in one instance there were a few still remaining on the 4th of July; but that year the bees were kept in their hives on account of bad weather very much of the time previous to this. Also, when spring opens there will be a few Italian bees in the colony so treated, which shows that very little brood is reared from October till April, as well as to tell us that more bees die in two months in the spring than during five or six months of winter.

The life of the drone is regulated very largely by the workers, for they are usually driven off or killed by the workers long before they would die of old age. Any sudden cessation in the flow of honey from the fields is often sufficient reason for their being driven out to die, or the killing of them by stinging, if they are persistent in staying in the hive; so it is hard to tell just what age they might attain to, were they allowed to live to "a good old age." Most apiarists think that they would live about the same time the workers do; but I am of the opinion that they are a little shorter-lived. It is a rare thing that any drones are allowed to stay in the hive after the honey-harvest is over for the year; still, we have a few reports of drones which have wintered over, and I have known of a few doing so, and that in a colony having a fairly good queen. But the hive was crowded to its utmost with honey during the fall.

The average life of the queen, where a colony is allowed to stay in a normal condition, is about three years, although some have been known to live five years. They live also in proportion to the work they do, or, more properly speaking, in accordance with the number of eggs they lay, as egg-laying is the only work they do. Under our present system of management the queen is often coaxed to lay as many eggs in one year as she usually would in a tree or box hive in a year and a half or two years; hence most apiarists think that all queens should be replaced, after the second year, with those which have just commenced to lay. However, I do not make this a practice; for I find that, as a rule, the bees will supersede their own queen when she gets to be too old to be of service to them; so I trust the matter to them, believing they are less liable to mistakes along this line than I am.

YELLOW OR MAROON.

Having a little space left I wish to say a word regarding the last Straw, and the editor's comments, found on pages 494 and 495 of July 1st GLEANINGS. What I wrote in the *American Bee Journal* was for the sole purpose of calling out Dr. Miller as to certain points regarding the markings of bees and their purity, which points have been so constantly put that queen-breeders have been classed as "frauds;" but the good doctor only helps the fault-finders in their notions by his answers in the *American Bee Journal.* And then he appeals to you, Mr. Editor, who, like Dr. M., furnish these same fault-finders with a club to knock your own brains out; for parties, during the past, when writing me, have classed *you* with the rest of us as sending out queens that did not give bees as represented; and the reason for this is that bees from imported queens have been classed as *yellow*, which were not yellow, when put to a practical test. To prove your point you appeal to the Standard Dictionary. I have only the Student's Edition of that dictionary, and in that I find, under the heading of "Yellow," this: "Having a color similar to that of the spectrum between orange and green, and resembling that of brass, gold, saffron, etc." As I could not well apply practically the spectrum part, I have just taken a new $5 gold piece I happened to get the other day (don't get one very often, even though we are on a gold basis), a piece of burnished brass, a piece of orange-peel (the dictionary says saffron is a deep orange color), a chestnut (maroon), and a piece of leather (which I send you with this article, so you can see it and put it beside your bees from imported queens if you wish). Now for the result: The three horny segments next the thorax on the bees from my imported stock are *much nearer* the color of that piece of leather than any of the other four colors I took, and that piece of leather is *very much nearer* chestnut (maroon) color than it is to that of brass, gold, or orange. Then, if I am any judge, that piece of leather can not be called yellow in any *true* sense of the word, whether I say, "My, oh my! what is the matter with E. R. Root's and Dr. Miller's eyes?" or not. I have had bees from imported stock that every visitor coming to the yard insisted were nothing but black bees; and only as I would cause the bees to fill themselves with honey, and place them on a window, would they be convinced, when the dark maroon color would be set out more boldly. Dr. Miller's answers in *American Bee Journal* show that he thought Doolittle wasn't "nice" in asking those questions, and that he did it in a censorious way. It would seem that Dr. M. had known me long enough to know that I never write any article for any such purpose as that. Purity, three yellow bands, five-banded golden Italians, etc., have been harped on so much that the masses of bee-keepers have been deceived, or have got a wrong impression, so they have become like the man who buys poultry "marked to a feather;" and when they do not receive something which these claims have caused them to think exists, they are ready to class the sender as a deceiver and a fraud. And I hoped the good doctor would "catch on" and help us queen-breeders by showing that bees from an imported queen are not *yellow* in the true sense of the word, because such a true statement from him would have much more weight than the same statement coming from half a dozen queen-breeders. But the doctor thought me hypercritical, and so drove me to put in this defense of myself and other queen-breeders.

[There is one thing, friend D., that perhaps you have not yet taken into full consideration. In speaking of the color of Italian bees direct from Italy, I referred not to individual bees or queens, but to the average importations we have received of them every year. We have so far this year received from Italy by mail some 75 queens, and have obtained that number direct from the Mediterranean every year for the past twenty summers. The yellow in the imported is darker than the yellow in bees that have been bred in this country for a long time: so far we agree; and to remove any possibility of misunderstanding, we say in our queen catalog, and have reiterated for years, in referring to imported Italian queens, "The queens themselves are a little darker than home-bred queens. . . . The queens as well as the bees are leather-colored." Here we agree again. But in all the hundreds we have received I could not call one of them maroon or chestnut. Here we don't agree. Yellow, however, stands for a variety of shades, and that color much more nearly describes the color of the imported stock than chestnut or maroon; and if you will hunt up a Standard Dictionary with the spectrum you will agree, I am sure. But it seems to me we are in danger of splitting hairs on an unimportant point.—ED.]

HEADS OF GRAIN FROM DIFFERENT FIELDS

SWEET CLOVER FOR BEES AND STOCK IN ILLINOIS.

This clover is one that yields a large amount of honey. It begins to bloom in this latitude in the early part of July, usually; some seasons a little earlier, others a little later. By the time white and alsike clover and basswood are going out of bloom, sweet clover is well out in bloom; and where abundant a continuous bloom will be had for securing surplus honey of two months or more. When a part of this clover is pastured or mown for hay, such will bloom the second time, and continue in bloom until after hard frosts. I have seen bees working on this bloom in October, when all other honey-yielding plants were killed with one exception, that being giant white-spiral mignonette, which is sometimes grown in flower-gardens.

Sweet clover stands drouth well, but gives a better yield of honey and pasture with frequent showers. The honey is light in color, but, to my taste, not of as fine a flavor as that from white or alsike clovers or basswood. In the dry regions of the West, sweet clover and alfalfa have proved valuable plants for bees and stock. The hay is largely fed to stock. Here cattle pasture on it freely, and the hay has seemed to give good satisfaction, as stock soon learn to like it.

This plant should be grown in all waste places, and thus take the place of the noxious weeds which grow there.

For hay this clover should be cut while the stalks and leaves are a bright green, and before any seed-stalks appear. A large amount is grown on an acre when a good stand is secured.

The plant is not so hard to get rid of when desired as some suppose. When the land is broken up and cultivated the plant is gone, and no further trouble need be feared, any more than from other clovers. Pasturing the field so no seeds mature has the same effect if kept up one or two summers. Some farmers in this State are growing large fields of this clover for feeding to stock in pasture and hay, so I am credibly informed.

In sowing the seed the ground should be made fine and rather firm, as better results are so secured than when the ground is left loose to quite a depth. It blooms the next year after sowing the seed.

DOES ALSIKE CLOVER WINTER-KILL?

My article on alsike clover, which is published in July 1st issue, page 503, was written in February, and its wintering qualities given were up to the past winter. At this writing I am forced to report that it badly winter-killed last winter, as did the white clover where it had been fed down closely last fall, as too many do. Last winter was here the most severe on trees, vines, grasses, etc., that we have known in the 40 years we have lived here. The ground was bare most of the time, and only one or two inches of snow at any time.

I wish to make this correction so that no wrong impression may prevail in reference to alsike clover here. All its other good qualities named on page 503 I have proven conclusively.

Our abundant rains this reason have brought on a fine growth of the clovers, which are now in bloom, but yield little honey so far. Basswood has just closed, and yielded lightly in honey. F. A. SNELL.

Milledgeville, Ill., July 7.

SPRAYING OUT OF SEASON; RESULTS.

Inclosed you will find something about spraying fruit-trees while in bloom, and the results. The same was taken from the Granville *Sentinel*, a local paper of Granville, N. Y., not far from here. Dorset is in Vermont. We know of others not far from here who are spraying out of season. It is high time that we bee-keepers were looking into the matter.

Caldwell, N. Y. F. A. LOCKHART.

IT KILLED THE HONEY-BEES.

As will be seen by the *Sentinel's* Dorset correspondent this week, the spraying of trees with a poisonous solution, in an effort to exterminate the worm-pest, has resulted in destroying nearly all of the honey-bees in that section. One poor woman lost forty colonies.

WORM POISON KILLS HONEY-BEES.

Many of our citizens have been engaged in waging a fierce war upon the worm pest that has attacked the foliage of our shade and fruit trees. The worms have appeared in great numbers. The vermicide in general use is a solution of Paris green and lime. It is only partially successful. An unexpected and serious result has immediately followed its use, so that it is a question whether the worms or the poison can prove the more destructive. Nearly a hundred colonies of bees have proved a total loss in this immediate vicinity. Many more will probably suffer the same fate. As a rule, the class of people thus afflicted can ill afford the loss of these bees. Their income largely depends upon their labors. Foliage of trees in blossom or bloom should not be sprayed with this rank poison. One person, a widow, in moderate circumstances, has lost her entire stock of bees of forty-two colonies. These were in a healthy condition, and, up to the time of the spraying of the trees, were actively at work.

[For two or three years back, just following fruit-bloom, or about that time at least, we have been having some dead brood in our hives. It is not like foul brood in appearance, and always disappears in a short time. We have finally come to the conclusion that it must be the result of spraying when the bloom is in. Most of the farmers in and about our vicinity are intelligent reading people ; but it is evident that there is some one or ones who are spraying at just the wrong time, and we shall make an effort to find out who it is. If reason and facts will not stop it we may have to resort to the more powerful arm of the law.

In many States there is no law against spraying during the time the trees are in actual bloom, notwithstanding all the best authorities admit and teach that just as good and better results may be secured before and after the bloom. The bee-keepers of Vermont and the vicinities referred to should bestir themselves to see that there is not a repetition of such work. If it is not ignorance it is ugliness that is at the bottom of it.—ED.]

WELL-FILLED OLD-STYLE SECTIONS.

I see you highly recommend the fence separator and tall sections. I have been having, for two years, as finely filled sections as can be desired, with old-style separators and 4¼ × 4¼ sections. I bore four holes opposite each section, ⅜ inch, for bees to pass through, with good results. A. L. BUTERBAUGH.

Utah, Pa., May 26.

[By boring the holes in the separator, you make of it, in effect, a fence — that is, a separator through which the bees can pass back and forth. You will secure a part of the advantages of the fence system, but not all.—ED.]

STRONG TESTIMONY FOR THE FENCE AND PLAIN SECTIONS.

I have just read Editor Leahy's editorial on "Fence Separators and No-beeway Sections." It leaves me with the impression that this man Leahy must have a slight prejudice against these things. If he can only succeed in convincing all the other honey-producers that it is a sad mistake to use fences and plain sections, then I will be the Root Co.'s only customer for these things. No, gentlemen, it did not worry me the least bit, upon reading this article, to think that I have been and gone and stocked up with 2000 fences, and have just ordered 10,000 more plain sections. If it were necessary for me to buy new fences every year, and throw away the old ones, I am convinced that it would pay me in dollars and cents to do so. Not only this, but if it were necessary to throw away the supers also it would pay me to buy new ones every year, so great are the advantages of the fence and plain section over the old-style section with a beeway part way across the top and bottom.

Sections are bound to shrink after giving to the bees. Bee heat is a very dry heat. Two or three days after the supers are put on the hives I make the round and tighten the screws in the supers, with no disturbance whatever to the bees. This is the secret of getting clean sections—sections that you can put into the shipping-cases without scraping (fall honey excepted in this locality). It will surprise one to see how many times he can turn the screws around a day or two after putting on the supers. It seems the bees evaporate every particle of moisture. Bees are natural moisture-expellers, in summer at least.

Eden, N. Y., June 14. E. W. BROWN.

[We are not worrying about the future of plain sections and fences. They are more than holding their own.—ED.]

GROWING BASSWOOD-TREES FROM THE SEED.

In the fall of 1893 I put some dirt in a pan, and some basswood seeds; then covered with an old mat, and covered the mat with dirt; then left the pan outdoors all winter. In the spring of 1894 I looked at the seed, and not one had sprouted. In the spring of 1895 it commenced to sprout. I planted them out, but the dry weather killed them, and I supposed that was the last of my basswood seed; but in the spring of 1896 there were 40 or 50 of the seed that came up. In the spring of 1897 they came up very thick. It seemed as if every seed grew. Then in the spring of 1898 there were a few more that came up. Last spring I wanted to plant them in a nursery-row, and the seed was still coming up.

My experience is, if the seed is put in dirt in the early fall, and put in the cellar, and kept wet all winter, a few will sprout the first spring, and the next spring most of them will come up; but it has got to be where the mice can't get at them, or they will eat them all up.

The way I like to raise basswoods from the seed is to plant them in drills with peas, then the next spring there will be enough that come up so we can see the rows; then the spring after, most of them will come up.

I had four rows, 26 feet long, that I got over 900 basswoods from, 4 to 6 feet tall. Two or three had blossoms on.

I have no basswood-trees for sale, as I want to plant a grove of basswoods.

Lamont, Ia., July 22. CHAS. BLACKBURN.

[The point made in the above seems to be that basswood seeds may lie in the ground several years, and finally grow. If all these freezings and thawings and length of time are needed to break or rot the hard shell inclosing the seed, may not the whole matter be hastened by cracking the seeds with a suitable machine, or immersing them for a proper period in boiling water or something of that sort? I believe nurserymen practice both methods with certain kinds of seeds that are slow in germinating. Who can tell us about it?—A. I. R.]

THE SERIOUSNESS OF BEE-PARALYSIS.

Dr. C. C. Miller:—In June GLEANINGS I noticed the inquiry of Mr. F. D. McMurry, and your answer thereto. As I have had some experience with bee-paralysis I volunteered to give the gentleman some advice, and wrote in regard to it; but I will copy the letter, as follows:

> If you follow Dr. Miller's suggestion, "quite possibly the disease will disappear of itself," and meet with success, well and good; but let me caution you that, if you find the disease appears again next spring, be sure to adopt prompt measures to stop it. I have battled with it since 1894, and, though I tried every procedure that came well recommended, the disease spread until, a dozen years ago, I began to destroy every colony that developed it; and this season, though I lost over half of my bees last winter, I destroyed two colonies that showed signs of paralysis, and hope I have throttled it now. What puzzles me is, how my bees got the disease, as no other bee-keeper is troubled with it. I had obtained some from queens from the East, previous to the advent of the malady in my yard, and am inclined to attribute it to this. How do you account for it in your case? I should be glad to hear.

From the above you will discover the estimate I put upon the gravity of bee-paralysis; and though I do not in the least doubt your experience, and as much as has been said of the disease north or south, the latitudinal danger-line seems not to be very sharply defined. I would beg leave to offer my experience as a caution in advising bee-keepers in this State upon this malady.

H. O. VASSMER.

Excelsior Springs, Mo., June 12.

I am very glad to send this word of caution from Mr. Vassmer. What is true of the disease in Northern Illinois is by no means necessarily true in Missouri, and Mr. McMurry will be wise to consider the experience of one nearer home. C. C. MILLER.

Marengo, Ill.

BEGINNERS' QUESTION BOX

BY E. R. ROOT.

W. K., Pa.—There is no one species that has been denominated a "bee-bird." Perhaps the nearest that comes to it is the ordinary king bird that sometimes proves to be a nuisance in a queen-rearing apiary, and they, accordingly, have to be shot.

G. W. C., Ohio.—I do not think it would be practicable to prevent the candying of honey by the use of glycerine unless so large a quantity were used as to make it practical adulteration. I would advise you to let the method entirely alone.

J. J. M., Iowa.—In the back part of the A B C book you will find a glossary that gives nearly all the technical terms. If you will consult that you will be able to understand much that is said. Perhaps you have been reading the book too much in snatches. If you read carefully "Hive-making" you will get an idea of many of the technical terms, and to what they apply. Each subject must be read through carefully.

EDITORIAL BY E. R. ROOT

SEE special offers on page 592.

BROTHER HUTCHINSON very magnanimously says bee-keepers ought to read *all* the bee-journals, visit other bee-keepers, and attend conventions. From a purely selfish point of view an editor would be inclined to say, "Take only one journal, and that one our own." But Bro. Hutchinson is away above such a spirit, and always was.

SERENADING SWARMS WITH TIN PANS.

A CORRESPONDENT says that the old custom of serenading swarms with tin pans originated from an old act of the English Parliament, giving a person a right to follow his swarm provided he rang a bell, or drummed on a tin pan, to give notice that he (the owner) was after the bees. This old act was passed something like a thousand years ago, and during the centuries since it is evident that the original purpose of the drumming was lost sight of, and that subsequent generations came to the conclusion that the serenading induced a sort of spell on the bees, causing them to cluster so they could be captured.

STORING HONEY IN A SPONGE, ETC.

AN item is going about in the papers, to the effect that bees have been taught to store honey in sponges, and the sponges are then passed through a clothes-wringer so as to squeeze out the honey, etc. Years ago I selected some sponges with holes in them as near the size of honey-comb as I could get, and tried to get bees to store honey in them, but I did not succeed. Bees will store honey in a receptacle only about the size of regular honey-comb. Unless they can crawl into the cell they will not use it for honey. The holes in a sponge that are too small for a bee to enter would make an excellent place for moth-worms where the bees could not get at them. The whole story is no doubt a newspaper yarn, and we hope it will not go the rounds of the papers as many such foolish things do.—A. I. R.

WHY CLOVER AND BASSWOOD DID NOT YIELD NECTAR.

Is there any one among our readers who can tell why, when all the conditions are favorable — plenty of rain, plenty of warm weather, and clover in abundance — it should not yield nectar in the good old-fashioned way? It is true that a good many of the favorable conditions have been lacking in some portions of the country. In our locality we have had all of them, apparently, and yet we may say there is the smallest yield from clover we have ever known. Some days ago I was talking with Vernon Burt about the prospect for basswood. "Why, there is plenty in bloom," said he, "but the nights are too cool." A few days ago, while talking with R. F. Holtermann, he remarked that the showing from basswood in Canada was good, but that it had been too *warm* — that they needed cooler and more moist weather. Well, now, I should like to know what are the best conditions for a secretion of nectar from basswood. If there is any scientist or bee-keeper who is able to give us the solution of these two problems I wish he would answer.

THE PHILADELPHIA CONVENTION.

WE have just received a copy of the program for the national convention of the United States Bee-keepers' Association to be held in Philadelphia Sept. 5, 6, 7, next. The following is the program:

Necessity of Pure-food Legislation from a Bee-keeper's Point of View.—Rev. E. T. Abbott.
Out-apiaries, and Their Management for Comb Honey.—W. L. Coggshall.
Possibilities and Difficulties of Bee keeping in Cuba and Porto Rico, and the Effect of Our New Relations with those Islands on Our Honey Market.—Fred L. Craycraft and W. W. Somerford.
Best Method of Comb-honey Production, with Latest Hive Improvements.—F. Danzenbaker.
Possibilities of Bee keeping.—Address by G. M. Doolittle.
Marketing Honey—Can and Ought We to Control Prices?—P. H. Elwood.
Bee-keeping, and the Source of the Honey Supply in and around Philadelphia.—W. E. Flower.
Foul Brood—Its Detection and Eradication.—N. E. France.
Our Pursuit as Viewed by an Amateur.—F. Hahman.
Why Bee-keepers' Exchanges Fail.—C. A. Hatch.
Bees or Honey—Which in Spring Management?—R. F. Holtermann.
Bee-keeping as a Profession.—W. Z. Hutchinson.
How to Conduct Successfully a Bee-keepers' Exchange.—J. Webster Johnson.
The Fall Honey Crop of Philadelphia.—John L. Kugler.
Organization among Bee-keepers — If Desirable, Why, and How Best Accomplished.—Thomas G. Newman.
Best Method of Extracted-honey Production.—Frank Rauchfuss.
Address by A. I. Root.
Fads, Fancies, and Follies in the Apicultural World.—Hon. Eugene Secor.
The Products of the Bee—Pollen, Propolis, and Honey—W. A. Selser.
Food Value of Honey—Its Adulteration and Analysis.—Hon. H. W. Wiley.
President's Address.—E. Whitcomb.

The "Western Passenger Association" will make a rate of one fare for the round trip plus $2.00. This amount is "added to the rates charged by the other association through whose territory the person may travel." For further particulars apply to the secretary, Dr. A. B Mason, Station B, Toledo, Ohio. While the season has been exceptionally poor, so far as honey is concerned, farm crops generally will be good; and as the rates are very low, owing to the G. A. R. encampment at Philadelphia, there ought to be a good attendance.

CORRESPONDENTS FOR BEE-PAPERS.

EDITOR YORK, of the *American Bee Journal*, says it seems that more than ever before the contents of the bee-papers of to-day are contributed by only a few writers, and that in this respect it is far different from what it was ten or fifteen years ago. This is quite true. Years ago it seemed to be the fashion, or rather, perhaps, the proper thing, to make every bee-paper a sort of "experience meeting." While this is all right and eminently proper for a prayer-meeting, bee-papers are not run for the benefit of the *correspondents*, but for the benefit of the *subscribers* who take them simply for the information they can get out of them. Very many bee-keepers are brimful of practical thoughts and suggestions, but either are not able or are disinclined to commit them to writing; but there are only a few practical ones who can or will put their practical ideas into good readable English, so it has come to pass that comparatively few do most of the writing for the bee-journals; and it remains for the editor or editors to prevent those few from running their followers into ruts. The men who do write should be practical, up-to-date men; nay, more—they should be a little *ahead* of the times; and the editor should rub against those who don't write, by going to see them. In that way he can keep himself out of the ruts.

THE SEASON FOR 1899, AGAIN.

REPORTS have been slowly coming in; but taking them as a whole they do not appear to make out that the season will be any better than was given in our last. For some reason or other many of those who have secured a crop are holding it quietly in reserve, hoping they will possibly be able to "bear" up the market. If there are such, they are pursuing a "penny wise and pound foolish" policy, for now is just the time to get good prices. Later on, when fall fruits are on the market, there will be less demand for honey.

For the last few days we have kept a "tab" of the reports as they have been coming in; that is to say, the clerk who opens our mails, as soon as a letter is received has been making a memorandum of that portion of any letter that referred to the season in any way. The following are the memoranda by States and postoffices:

McIntosh Bluff, Ala. S. W. Very unfavorable honey season.
Safford, Ariz. S. E. No surplus.
Taylor, Ariz. E. Very poor year.
Bakersfield, Cal. S. W. Bees doing well.
Famoso, Cal. S. W. Honey is coming in.
Pala, Cal. S. Filling hives very fast.
California. Near mountains, crop good.
Chatham, Can. Crop failure.
Grand Jc., Colo. W. Prospects not flattering.
Palm View, Fla. S. W. Bees doing well.
Bishop Hill, Ill. N. W. Honey total failure.
Hospital, Ill. N. E. Sweet clover booming.
Atwood, Ill. C. Bees doing finely.
Mead, Ind. C. Lots of honey.
Terre Haute, Ind. W. Small crop.
Knightstown, Ind. E. About half crop.
Elk, Iowa. Bees doing finely.
Charles City, Iowa. N. E. Small surplus yield.
Natick, Mass. N. E. No honey in this section.
Sanilac Center, Mich. E. Clover flow not very good.
Chesaning, Mich. C. Honey flow good.
Nirvana, Mich. W. Not much honey.
Bentheim, Mich. Not getting any surplus.
Benzonia, Mich. N. W. White clover poor; basswood good.
Holt, Mich S. Honey crop a failure.
Filion, Mich. E. Bees doing well on clover.
Milan, Mich. S. E. No honey.
Montgomery, Mich. S. 200 lbs. top honey from four swarms.
Fruitport, Mich. W. Bees doing well.
Farwell, Mich. C. Surplus good.
Pease, Minn. E. White clover, basswood, and willow-herb yield splendidly.
Shackelford, Mo. C. Big crop of white-clover honey.
Lebanon, Mo. S. W. Surplus good.
Arlington, Neb. E. Oceans of white clover, but bees in a starving condition.
Naples, N. Y. W. Almost no finished sections.
Groton, N. Y. S. Not a full super.
Eden, N. Y. W. No surplus.
Harpursville, N. Y. S. No white clover.
Pamelia, N. Y. N. W. Poorest season known.
Cherry Valley, N. Y. C. Honey crop very light.
Wellsville, N. Y. S. W. Honey crop lightest in years.
Syracuse, N. Y. C. Prospect very poor.
Defiance, O. N. W. Honey failure.
Canal Fulton, O. N. E. Boxes about filled.
St. Stephens, Ohio. N. W. Honey crop light.
Hannibal, Ohio. S. E. No white clover.
Plain City, Ohio. C. Honey crop short.
Camp Chase, Ohio. C. Bees not doing well.
Mechanicsburg, Pa. S. Average per colony 40 lbs. comb honey.
New Lebanon, Pa. W. Season a failure.
Rockton, Pa. C. Not much honey.
New Milford, Pa. N. E. Honey crop very light.
Antesfort, Pa. N. Honey-flow great.
Coronaca, S. C. W. Utter failure.
Paris, Tenn. N. W. Honey drouth.
Hutto, Tex. C. Fine flow of honey.
Clarksville, Tex. N. E. Bees doing no good.
Hutto, Tex. C. Good flow.
Mexia, Tex. C. Honey crop short.
Uvalde, Tex. S. W. Only 5 gal. from 200 swarms.
Catlin, Wash. S.W. Flowers plentiful, but no honey.
West Bend, Wis. S. E. Considerable basswood, but no clover.
Dilby, Wis. S. W. Very short.
Riverview, Wis. N. W. Honey season good.
Kickapoo, Wis. S. W. About half crop.
Kearneyville, W. Va. N. E. Honey crop light.
Banister, Va. Bees doing well.
Orwell, Vt. W. Bees doing nothing.
Monkton Ridge, Vt. W. Worst drouth ever known.
Vero, Fla. S. I have sold about one thousand dollars' worth of honey this season. H. T. GIFFORD.
Batavia, N. Y. C. My honey crop this season is about 3500 lbs. from 150 colonies, or about the same as last year. F. H. FARGO.
Nipamo, Cal. S. W. 188 colonies, 7100 lbs. honey. Extracted, May 2, 840 lbs.; May 17, 1560; May 31, 2000; June 17, 2700. C. G. MCNEIL.
Dilly, Wis. S. W. Crop very short. GUSTAVE GROSS.

The capital letters N. W., S. E., S. W., C., etc., indicate respectively northwest, southeast, southwest, and central portions of the different States. It will be noticed that in one section of any one State the season may be extra good, and in another portion an utter failure; and one will be surprised to read over the number of favorable reports in the whole list; and yet these are not one-fourth, out of the total.

As has been our custom every year, so it is this year, to allow every honey-producer who has honey for sale the free use of our advertising columns to the extent of five lines of space, one insertion. Those of you who do have honey should make haste to let it be known.

HOW TO CARRY SWARMS OF BEES ON A BICYCLE.

I have secured swarms of bees in sacks this time of year, and carried them on a bicycle. It sometimes happens that a farmer will say a swarm of bees is hanging on a limb a mile or so from our office. It would hardly pay to send a man with a horse and buggy; but with a bicycle and cheese-cloth sack I can very soon have those bees back home and in a hive. The sack should be carried by the upper end, where it is tied. Before the sack is tied, however, the bees should be shaken down to the bottom, and then the string should be secured four or five inches above the mass of bees. I usually carrry the sack in one hand and guide the bicycle with the other.

A year or so ago there appeared an account in our columns of how a very enthusiastic youth, seeing a swarm of bees remote from his home, was particularly anxious to secure the bees and take them. What did he do but remove his pants, tie the legs of them together, shake the bees into them, and rush home? No mention of the fact is made of *how* he got home, or whether he was stung or not, or whether he met any one on the way; but the fact was clearly brought out that the bees were *hived*, and finally developed into a prosperous colony.

Taking this incident as a cue, I do not see why we can not use the cheese-cloth sack in the manner I have described. The body of the sack can be slipped clear up over the cluster of bees as they are hanging on the limb; and, if more convenient, the mouth of the sack can be tied around the limb so as to make it bee-tight; the limb can be cut, and our bees brought home in triumph.

LIGHT-WEIGHT SECTIONS, AGAIN.

IN one of Rambler's Echoes, in this issue, he gives a clip at the practice of selling light-weight sections. If he were to move back to his old State, and go through the regions of Albany, Otsego, and Schoharie Counties, and then take a run through the cities of Albany and New York, I think he would come to the same conclusion that I have; namely, that in these localities the idea of a pound weight seems to be losing ground, and in some places it has been lost sight of altogether. The tendency has been toward a ten-cent box—something that can be passed out to the customer at even change, without stopping to figure up ounces and fractions to get at the cost of the honey. Indeed, ¾ and ½ pound sections, when well separatored off, will run very evenly in weight, providing the combs are thin. Then these York Staters have a fashion of sorting and putting up honey in cases both as to grade and as to weight. A well-filled box will usually grade No. 1; a poorer grade and lighter weight will sell at 8 cents.

In some localities it may be that the thin comb works deception on the consumer, causing him to believe he is getting a pound, the usual weight, when really he is getting only 12 ounces. But the more honey is sold by the piece (and the practice is growing everywhere), there will be less and less of deception; and the consumer will come to forget all about pound weights, and will simply ask how much that honey is per box or section — not how much it is by the pound.

Incidentally, it may be remarked that it is going to be difficult to raise the price in good years if we sell by the pound; and honey was priced and sold in 1897 at or below the cost of production. But if honey should be sold by the piece, then the old standard of measure (a pound of honey for 12 cents, we will say) is lost sight of, and a new standard (a box for 10 cents) will be set up, which will practically mean honey at 15 cents per pound, as against honey at 12 cents. Is this dishonest? Not if honey sold by the piece is worth 15 cents per pound, and can not be produced at a profit for less.

WANTED, A $100 QUEEN; MY IDEA OF WHAT A $100 BREEDER OUGHT TO BE.

THAT does not mean that we would pay that amount of money to any one who *thinks* he has a queen worth $100. There have been only a few such queens reared that I know of. One was our red-clover queen that produced bees that would not only gather honey from red clover, but actually store honey in sections when the other bees in the apiary were apparently doing nothing — simply robbing; and after the honey-flow they would keep their combs supplied with honey when the others were starving. The daughters of this queen made remarkable showings for the different bee-keepers over the country; and if we had the old queen herself again, $100 would not buy her. Alley had, a year or so ago, what he called his $100 queen. He sent us one of her daughters; and if we had her duplicate we would not sell her for $50. Her bees were wonderful honey-gatherers, and her daughters were beautiful, uniformly and well marked. Now, perhaps some queen-breeder may think he has a queen that will fill the bill. Perhaps so; but we reserve the right to try her in our own apiary at least one honey-flow before we shall be willing to pay over the money, for we do not propose to take the judgment of somebody else—one who is interested in the sale of such a queen. And another thing: Before the queen is sent we should require her pedigree, the history of her bees as honey-gatherers, and the markings of her daughters. We want something whose bees will outstrip every thing else in the yard by *long odds*.

There are hundreds of individual queens whose bees go a *little ahead* of the rest of the yard. We have them; but we want something very much better. We are at present developing a stock that, next season, will be worth five and ten dollars a breeder; and if we can get our $100 breeder we shall hold her best daughters at $25. Here is the point: If a bee-keeper can, by paying from $1.00 to $1.50 for an untested queen that will bring him, in a good season, $5 00 in clean cash, how much has he saved if he buys a 75 cent queen that will bring him in only $2.00? And yet there is just that difference in the bees of particular queens sometimes.

If that quality can be maintained right along in the bees and daughters of a breeder, that breeder is worth *money*.

A Jersey, for instance, that can produce a pailful of milk at a milking is worth more than twice as much as some common "barn-yard affair" that will produce only half that amount of milk, and yet consume the same amount of fodder, and require the same amount of care. I don't know that we can get our ideal, but if some one can reach the mark there is $100 that is waiting.

OUR HOMES,

BY A. I. ROOT.

For what is a man profited if he shall gain the whole world and lose his own soul?—MATT. 16 : 26.

The Bible is full of warnings against selfishness; in fact, the ruling thought of the whole book seems to be that we shall cherish a kindly love toward those about us, and that we should try to cultivate such a spirit of unselfishness that we shall be glad to see others prosper—yes, glad, even though at times what is their gain may be our loss. We are exhorted to believe that the highest state of happiness comes in overcoming selfishness and greed, and being honest and fair toward all mankind. The text I have chosen seems to be a sort of summing-up of all these admonitions and exhortations. When Jesus, the Son of God, came here into this world and mingled with humanity, the sight of these low selfish feelings seemed to weigh him down with sorrow. The sight of human greed seemed to give him pain, and he plead with humanity to rise above such thoughts and feelings. He spoke parable after parable. He had just been rebuking poor Peter because Peter declared Jesus should be spared the ignominy of the cross. Peter spoke from the human point of view. He could not comprehend that it was God's will that his only Son should endure the cross. After rebuking Peter he turned to his disciples and said, "If any man will come after me, let him deny himself, and take up his cross;" and then he uttered the words of our text: "For what is a man profited if he shall gain the whole world and lose his own soul?"

Just while I am writing, in a neighboring city a great strike is going on. We might almost call it a civil war. The sad thing about it is that for some reason the police and other officers of the law do not succeed in restraining the outlaws. There seems to be a new and unheard-of state of affairs. Bricks and stones are thrown from a crowd, but the police can not make any arrest because they can not find out *who* threw the missiles. Innocent travelers on the street-cars—yes, women and children — have been damaged by these missiles; but the perpetrators of the deed go free because, as they say, no one knows who threw them. I once asked why crowds were allowed to collect; but I soon learned they dispersed when they saw a policeman approaching, but gathered again when they were sure no policeman was around; and then it transpires that the perplexing state of affairs largely comes about because the rioters have so many sympathizers. The common people, at least a large portion of them, seem to be in sympathy with those who are trampling our laws under foot, and almost *defying* law. We have been told from childhood that laws can not well be enforced unless public opinion and sympathy are back of the law. We have learned that in temperance work. Unless the majority of the people—perhaps we may say of the voters — are friends of temperance, it is very hard to enforce the temperance laws. Does it follow, then, that the majority of our people, or at least a large portion of them, are in favor of mob law? I do not think so; but I do fear that a large proportion of our people are uneducated, especially in the large cities; and a still more serious thought is that perhaps large numbers know but little about the gospel of Jesus Christ. They have but very little comprehension of the grand truths revealed in the Scriptures. In spite of our schools and churches, in spite of the Endeavor Society and similar organizations, we are slipping down, a great part of us, into heathenism. Perhaps I might throw out another little suggestion right here: Whenever you read the names of those who have been arrested for disorderly conduct, you have perhaps noticed that the names are strange and foreign. They are not often Yankee names, and not often American. If you look over Dun and Bradstreet, and notice the names of the saloon-keepers in almost any town you will find these strange long names, oftentimes too difficult to pronounce; and, by the way, I hardly need tell you that the saloons are in close touch with the strikers almost everywhere. They may resent this, and deny it; but it can not well be disputed.

It seems a little strange that these troubles between labor and capital should connect themselves so persistently with the electric railways. Since the strike has commenced in Cleveland, other strikes have been started in other cities, and in the city of New York they have been tearing up the tracks, cutting the trolley-wires, placing obstructions in the way, and defying the police and officers of the law. What does it mean? Why should the great street-railway companies have more of this kind of trouble than anybody else? Is it not possible that it is the natural result of transgressing some one or more of God's holy laws? and is it not altogether *probable* that the employees and employers would feel better if they did not have to work Sunday just the same as any other day? No, that is not fair. They are called on to work *more* Sunday than on any other day; and all *sorts* of railways are making a stronger effort this year than ever before to increase the Sunday traffic. Our great dailies that profess to love law and order — yes, and righteousness too — *boast* of the enormous number of passengers that have been carried on a single Sunday, as if it were something to brag of, that we are opening up trade and traffic on new lines, and that, too, on the very day which we are commanded to remember and keep holy. We have just had proof that the cars *can* stop running on Sunday, for they have shut down on a great many week days in succession, and people got along and attended to business very well. They have been shutting down nights too, because the unruly mobs would not let them run after dark. Now, suppose some particular line should declare they were not going to do business on Sunday. Suppose they should say they wanted a rest themselves, and that they were going to give their employees a rest too. Then suppose they each put their business in charge of men who are in *sympathy* with God's laws. Has anybody any doubt as to what the result would be? They would be respected by the great world at large, and they could feel some consistent respect for themselves. Somebody may urge that such multitudes as they have in the cities could not get to *church* without the aid of the street-cars. Then let us build churches where the people *are*, instead of carrying the people long miles to get *to* the churches. Let us start more missions and Endeavor Societies.

It is possible that the electric cars do sometimes carry a *few* church people ; but who will dare to dispute me when I say they carry ever so many more to saloons and on Sunday excursions where drinks are sold? At Chippewa Lake, five miles south of here, we have lately made several arrests, and fined and imprisoned men for selling liquor, keeping gambling-houses, etc. Well, just a few Sundays ago a great excursion came in on the cars, bringing their beer and other liquors ; and as they expected our Medina officers would be likely to be on hand, we are told a delegation went along, composed of 75 men. This body of men was to keep watch, and see that no marshal or policeman should come on the grounds. In fact, they threatened violence if they showed themselves or undertook to make any arrests. How far removed is this from an *organized rebellion* against the instituted and approved laws of our land? Of course, no arrests were made, because in our little town there was not a sufficient number of officers, or at least a sufficient number could not be gathered together in time to arrest the law-breakers before they had packed up and got away.

Just now we ought, each and all, to be thanking God for the present prosperity. Everybody is at work ; and, so far as I can learn, everybody has good pay. Even a great many people who were almost always out of work because nobody could afford to pay them average wages on account of incompetency, nowadays are having steady jobs. Sometimes I ask those who employ them how they get along ; and the reply is, "Oh ! I know they do not earn anywhere near what we pay them ; but we can not get anybody else ; and rather than suffer loss we employ them, thus choosing the lesser of two evils." A few years ago there was a constant lament because there was no chance of getting employment. People tramped from one end of the country to the other to find something to do ; but now when there is lots to do, almost *everybody* has a job, and it seems as if the proper thing to do is to unite in thanking God for plenty — yes, for the abundance that seems within the reach of almost every man, woman, and child. Instead of these strikes and quarrels we ought to have a grand thanksgiving day. I do not mean a day for a great lot of us to get drunk, but a day devoted to sober, quiet thanksgiving and praise to God for all these mercies.

In regard to wages, great corporations and large factories are advancing pay when their workmen do not ask it and do not expect it. A great many establishments are giving their employees "happy surprises" in the way of unexpected advance in wages. Why, these things should tend to *diminish* strikes ; or if we have strikes they should be easily settled. We now have State boards of arbitration, and they are composed of good men, and they have been doing their utmost to do away with the strike in Cleveland ; but their efforts seem to be almost unavailing. A few weeks back I suggested that certain people seemed to be, in these modern times, possessed of the Devil. Well, just now it looks as if not only individual persons but *whole crowds* were possessed of some spirit of evil. I have just glanced at a Cleveland daily. It stated that the cars were run without much molestation until they passed a factory where a large number of girls were employed. These girls threw bricks and other missiles from the windows. A car was smashed, and human life was endangered. The police visited every floor, and made unavailing attempts to discover who threw the missiles. Now, the most alarming thing in the whole matter, to me, comes in right here : While the policemen were going through the place these girls and women hissed at them and made derisive remarks. I once heard our pastor tell us that, if we could not respect the man who held office, we should respect the office he holds. Now, I do not know just how the law reads ; but it seems to me that every policeman and marshal should be empowered to arrest every person who shall treat him with this kind of disrespect — not disrespect to the man who holds the office, mind you, but disrespect for the office itself. These girls or women seemed to say by their actions that policemen, instead of being a safeguard to humanity, are *foes*. Their actions were in the line of anarchy ; and it is my impression that, sooner or later, we shall have to take in charge every person who expresses his disgust and want of respect for law, much as when we arrest and punish a man for resisting an officer.

There seems to be a pretty strong element that indicates by its actions it would like to trample law under foot. After these people have got law and all its officers under foot, they have not told us what they would do, but we can guess. Dynamite has been used in Cleveland to destroy property, and also in Brooklyn, N. Y., and other large cities. All of these troubles, if I am correct, come from differences in regard to who shall have the money that is earned, or perhaps in regard to the manner of dividing the earnings of our street railways. When things go on peaceably everybody is rejoicing over this new arrangement for transportation that carries people several miles for only a nickel. Farmers who have horses with nothing to do have told me they could ride to town cheaper on the cars than to hitch up a horse, even if he needed exercise. We have all felt happy to think we could travel so comfortably and so cheaply ; and as improvements are being constantly made, these great companies are every year carrying us further and *further* for only a nickel. One great city has already commenced carrying people, and giving transfers, for three cents instead of five; and yet, instead of this thanksgiving that I have been talking about, we are having fierce wars, and blood is being shed, and the greatest part of this war and bloodshed comes over these very electric cars.

It is not in the great cities alone, however, that Bible teachings are forgotten. This greed for gain, and sacrificing reputation and every thing else for gain, seems to be everywhere. Let me give you one illustration: The postmaster in a town of moderate size received quite a good salary; but instead of doing the work himself he was permitted to have two young women for assistants. Although he had quite a comfortable salary these young women who did the work had quite a small one. As the business of the office increased the girls asked him if he did not think they ought to have a little better pay. He said he agreed with them, and promised to write to Washington and use his influence in getting a better appropriation for them. This he did, but he told them that the increase was not granted. But this was an untruth. The raise in salary *was* granted, but he put the amount in his own pocket, simply giving them their old pay. They had such perfect confidence in their employer that they signed receipts for their pay on a blank, leaving him to fill it out. This thing went on for two years, when one of the young ladies wrote to Washington herself, and discovered the true state of affairs. Now, this man, not content with having a big salary when others did the work for him, at small pay too, not content with this injustice, for that is what I call it, he *robbed* these poor hard-working *underpaid* young women, and put the stealings into his own pocket that he might buy more cigars, and possibly drink more beer (or do something still *worse*) with the money. Was this man possessed of a *devil* too? I have never learned that the Devil has any conscience at all, and I presume he has none; but if he *has* he certainly would have been *ashamed* of himself and of his meanness, to be found engaged in such a dastardly work as this. Oh how *foolish* it is to try to get a little more for yourself by cheating somebody else! I fear it is indeed true that, in the United States of America, where young women are better treated (so it is said) than in any other country on the face of the earth, I fear it is indeed true, as I said, that here in our own native land, women are many times allowed to suffer just because they *are* women. If one man should come before some other man, and demand fairness and justice, he would get it simply because his opponent would know he would not submit to being put off or cheated; but if a *woman* should come and make the same protest, and demand her rights, this same man might, and I think does sometimes, say to himself, "Oh! she is only a woman. *She* will not do any thing;" or, perhaps, "She *can't* do any thing, and so I will not bother myself about each other."

Now, when I tell about the sins of humanity I try to look into my own heart and see if I am ever guilty in a similar way. Several times of late, conscience has given me quite a lash right along on this line. Almost every day of my life I am conscious of something or other that has been neglected that really ought to be seen to. I excuse myself somewhat by saying I am old and partly worn out, and I can not fight everybody's battles as I used to do when younger. Well, perhaps I am somewhat excusable along this line; but where conscience lashed me is right here: When I read my letters, as they come in the mails, I never look to see who the writer is till I get clear to the end. Well, oftentimes of late I am urged to take in hand something that needs to be done. A letter is so eloquent, and the matter is stated so fairly, that I say to myself, "Well, now, I will drop every thing else, and get at this thing right straight, and do what I can to have it righted." But perhaps when I come to read the signature I see it is *Mrs.* somebody instead of *Mr.* Now, while I ask God to forgive me I want you too, dear friends, to forgive me when I confess that, when I see it is "only a woman," I sometimes draw a sort of breath of relief, and conclude I will not do any thing about it after all. Now, what is the reason I do not move with the same vehemence and alacrity when a woman pleads that I do when it is a man? I am afraid, dear friends, to be real honest, it is because I sometimes take it for granted she will not do much about it anyhow, if no reply is made and the matter is dropped. Let me see. What text was it I gave you a talk on quite recently? As sure as you live, it reads, "We that are strong ought to bear the infirmities of the weak, and not to please ourselves." A true gentleman ought to exert himself *more* when a petition comes from a woman, or, if you choose, from a child, than when it comes from a man of wealth and influence. I believe it *is* a pretty good plan to read the letter over carefully before you look for the signature; then decide what you will do, entirely on the *merits* of the case presented, and not because of the one who presents it. How many of us are there who do that way? And, again, how many are there who will promise right here now to put away all bias or prejudice, and do right before God, and not gauge your alacrity according to the standing or influence or person who asks you to do him a favor?

Some little time ago there was a question up about rent. A friend of mine was to have his property put out on the sidewalk in a very few hours if his rent was not paid. I questioned about it, and was told my friend did not propose to pay the rent, because the renter had acted so *mean* about it. I replied:

"Why, don't you pay a just debt, even if a man *does* act mean? I would pay everybody every cent that is honestly his due, without any *regard* to how he has acted. In fact, I do not know but I should be a little readier to pay a *mean* man, for then we could wind the matter up and have nothing further to do with it."

After an arrangement had been made to pay up the month's rent I remarked, "But, look here. You have occupied the premises two weeks since the rent was due. How about the rent for these two weeks?"

The answer came something like this:

"Oh! the premises have been occupied these two weeks because he was making such a fuss about the matter. That is all right. He will not make any fuss about the two weeks. He will be glad enough to get the pay for the month that is overdue."

When I was told this was the customary way of doing things of that kind I remonstrated again; and I have been told that the landlord or landlady, I do not know just which it was, was a good deal astonished because I arranged the rent should *all* be paid, not only for the month that they quarreled about, but also for the two weeks they had said nothing about. Now, my friends, this thing is all wrong. I know something of the many difficulties there are, and the quarrels that come up, in consequence of *renting* property. People who rent all their lives are, I suppose, poor people, and no wonder. The best way to get rich, and avoid paying *any* rent, is to pay every cent you owe to anybody, no matter if he *is* mean. If there is a difference of a few cents, pay it. Better be wronged, by far, than to try to go to sleep at night with the conviction resting on your conscience that *you* have wronged somebody. I suppose there are people who gain a few cents every day by shirking responsibilities. There may be some who manage to cheat somebody else out of a dollar or two every day of their lives; but do people get *rich* that way? Why, one might almost think they would, to take only one view of the matter. The old adage is, "A penny saved is a penny earned;" but it does not say that a penny saved *dishonestly* is a penny earned. It is an easy thing to get a reputation for being small and mean and dishonest, and the man who gets such a reputation suffers. He suffers in a thousand ways. He loses the confidence, friendship, and assistance of his fellow-men. He loses all that is bright and good in this world. He loses happiness; and finally our text tells us he *loses his own soul*: and who will ever be able to tell *all* that is implied and comprehended in these words that our Savior himself once used?

LAGER BEER BY THE MILE.

We clip the following from the advertisement of a well-known American brewery:

> When 219 carloads of our beer were shipped to Manilla, the world wondered. What industry was this that shipped its product by a mile and a half of trains to that remote spot?

Yes, indeed, we may well repeat, "What industry is this?" In former times our people had some experience in teaching the American Indians to respect our United States laws. But they very soon made it a heavy penalty for any white man to sell whisky to an Indian. The whole world—or at least a greater part of it—is discussing the right and wisdom of the United States in undertaking to reduce the Filipinos to subjection to our laws. Now, then, what kind of civilization and Christianity is this, to send in intoxicating liquors, not only by the carload, but by the *miles* of carloads, at the very time when we are fighting the savages in a foreign land, and their own land too, as it *seems* to *them?* I am not disputing the right of the United States to subdue the Filipinos; but I *am* disputing the right of the United States to subdue any nation or any people where our people use whisky and firearms at one and the same time.

HIGH PRESSURE GARDENING

BY A. I. ROOT.

GROWING STRAWBERRIES IN A BARREL.

As there has been considerable inquiry in regard to this matter, Mr. J. P. Ohmer, of Dayton, Ohio, the originator of the plan, has sent out a little circular describing the process. Here it is:

> Take any iron-bound barrel except those which have been used for pickles, sauerkraut, or vinegar; take all hoops off but four; bore four holes in the bottom. Then space holes around the barrel so that twelve plants will go around it. Five rows high will make sixty plants to the barrel (the fifth row can be placed five inches from top of barrel). Bore two holes, one above the other, and cut out the wood between the two holes. By using a bit 1½ inches, you will have a hole 1½ by 3 inches. When you plant, put the plants as near the top of the holes as possible, to allow some for settling. Use clay ground, well mixed with rotted manure. Put two inches of gravel in the bottom of the barrels to keep the drain-holes from getting stopped up. Put in the dirt till about three inches above the first row of holes. Be careful to have dirt not too wet.
>
> The first row of holes must be 8 inches from the bottom of the barrel. Get in and tramp the dirt solid, then loosen the dirt with a trowel where the plants go; then plant that row. Spread the roots out well, then put dirt about half way up to the next row of holes; then take a common drain-tile, 12 inches long by 3 or 4 inches in diameter; put it in the center of the barrel, and fill the tile with coarse sand; then fill up the barrel with dirt a little above the next row of holes; tramp again. Be careful not to move the tile. Cover up the tile, so as not to get any dirt in it. After planting the second row, lift the tile. See that the sand settles, then fill the tile with sand again, then put in dirt above the next row of holes; tramp again, and plant that row, and repeat the operation until the five rows are planted. *But don't fail to tramp.*
>
> After you are done planting, the tile remains in the barrel; have it empty, so as to take the water. In watering, you water in the tile for the lower rows; on top of the barrel for the two top rows. It would be impossible to water the lower plants without the tile and the core of sand. You can water the plants too much. Fill the tile once per day, and put about two quarts of water on the outside of tile. After cold weather sets in, we quit watering. They want no winter protection. Set the barrel on brick, to keep it off the ground. If any should die in the summer you can replant them by taking a runner and putting the young plant in the hole, and stick it fast with two little sticks.
>
> Use the largest fruiting variety that does well in your locality, and perfect blooming sort, if possible. Planted early in the spring, you may expect a fair crop the same season. Paint barrel any light color, for contrast

After hearing Mr. Ohmer describe the barrel at the horticultural meeting, he added that no one had better undertake it unless he could attend carefully to all the details, for a little neglect in watering will ruin the whole thing very quickly. Such a barrel is too heavy to carry indoors. It must be wintered right in the open air. Somebody asked him if it needed turning around so the sun could get at all sides. Mr. O. told us if we would get up early enough in the morning we might see that the sun goes clear around the barrel, from morning till night, and actually laps over quite a piece. No turning around is necessary. You can get the finest strawberries in the world by the barrel plan, and more bushels to the acre, that is, if you had an acre covered with the strawberry-barrels, than you could possiby get by any other plan.

OUR NEWER STRAWBERRIES.

Although I have again and again declared I did not want our list of strawberries made any larger unless for some *exceedingly* good reason, I find at least some of the new ones I have seen in bearing for the first time that promise very favorably. The first is the Ridgeway; and if it will grow on my own grounds as I saw it on Wilbur Fenn's, at Tallmadge, O., I shall certainly give it a place. The plant is a remarkably strong, robust grower. The berries ripen a little late, but are remarkable for their size, beauty of shape, and for the fact that they stand away up above the foliage and out of the dirt. Every berry seems to be as perfect, almost, as if it were turned in a lathe. In this respect it resembles the old Cumberland Triumph. Now, this is the way it behaves on cousin Fenn's grounds. Most of us are beginning to learn that the berry that does well in one locality may not in another, even near by.

The second one I wish to call attention to is the Empress, just brought out by Matthew Crawford. I visited his place when most of the strawberries were gone, and the dry weather was fast using up the late ones. The Empress, however, had a magnificent growth of foliage, and green berries and ripe ones were both in great abundance. When I suggested it was a late berry, friend Crawford said it commenced ripening quite early, on the contrary. I know the plant is a tremendously strong and robust grower, because we have it on our own grounds. Now, if it bears everywhere else as it does at Matthew Crawford's place, it is certainly remarkable, because it *holds out* "head and shoulders" above any thing else.

Last, but not least, I wish to call attention to the Hunn. When I asked friend Crawford for the latest berry known, he took me off to a distant part of the field and showed me the patch of Hunns, all green fruit. There was hardly a berry ripe enough to get the flavor, and yet almost every thing else except the Empress was perfectly done for the season. The Hunn is a peculiar-looking berry, but it did not seem to be a very robust grower, perhaps because the ground was too poor where it happened to be located. I should say it is a *good deal* later than the Gandy and Parker Earle in time of ripening. We shall give it a good test next year.

CALLING THINGS HUMBUGS.

I have been trying for five or six years to get a taste of the Japanese wineberry, and I think it has been generally voted a humbug, mainly because it does not stand our winters. Well, a few days ago I had another one of my happy surprises in finding some clusters of wineberries, about as handsome as any thing I ever saw in the small-fruit line; and when I came to taste them, the delicious sprightly acid, with a pronounced raspberry flavor, was *another* one of my happy surprises. A dozen plants came through the severe winter—in fact, one of the most severe winters we ever had—with scarcely an injury. The beauty of the clusters of fruit, together with their delicious, unique flavor, made me feel as though the plant was worth all the time I have fussed with it.

While we are on this subject, here is at least one friend who takes the part of the much-condemned Gault raspberry as follows:

> What is the Gault everbearing raspberry doing? I never hear about it any more. I have some of them, and I think they are all right.
> Oakley, Ill., July 11. FRANK BAKER.

THE PORTER APPLE — ITS EARLY FRUITING.

I think I have before mentioned the Porter apple-tree that bore two pretty good-sized apples of excellent quality in less than a year after it was put out. Well, the second year—that is, during the present summer — it had eleven very fair apples; and I should call it, judging from these specimens, the best early apple I ever tasted. Can anybody tell me why the Porter apple has not been made more of? Is it a trait of that particular variety to bear so early? Why, the tree that had the eleven apples on is no part of it higher than I can reach. This seems a most desirable trait in an apple-tree, because in an orchard of over 100 trees we did not get any apples worth mentioning until the orchard was almost or quite ten years old. The Porter is a tart apple, similar to the Early Harvest. The shape is a little oblong, and the perfume of the ripe apples is exquisite, even when you are several feet away from the tree. The skin is very thin; color, a beautiful whitish yellow when ripe, and so tender it almost melts in one's mouth. Now, that is *my* description of it. But I am told by nurserymen that the Porter is comparatively well known, and yet nobody has ever yet made any particular fuss about it.

GOOD ROADS.

Medina is one of the muddy counties. In the spring it is no unusual sight to see wagons in the mud up to the hub; and sometimes it requires a good team to pull an empty wagon just a few miles. Last winter, and, in fact, several months before winter, quite a stir was made for better roads. A mass meeting was held; and at this meeting, of course there were certain ones who vehemently objected to putting any more burdens on the overburdened tax-payers—especially the poor farmers. Finally, when there seemed to be a good chance for a regular row about the new roads, somebody started out to see how many voluntary subscriptions he could get for work to fix one of the worst pieces of road in the county ready for a broken-stone covering. To the great surprise of many, the farmers turned out in such crowds that a big enthusiasm was started. Business men, and people from miles away, who did not wish to be outdone, furnished men, money, and horses. The "Burnham Flats" were finished in good style before we knew it, and it did not cost the county a cent. We are now doing the same thing past our own home. Six teams and a large crowd of men are at work to-day, July 26. Nobody can grumble or find fault, because each one does what he pleases, of his own free will.* May the Lord be praised that *good* things are contagious as well as *evil* things! Enthusiasm is spreading in every direction, and stone roads will soon be started out of our town in four different directions; and it looks as if there were going to be strife to see which road will be carried the most miles out into the country. Now, if the work that is being done to-day had been done forty years ago it would have saved in horse flesh, wear and tear of vehicles, etc., who can compute *how* many times the cost of the whole improvement? Farmers and everybody else have taken *days* to move their stuff when *hours* would have accomplished it with the new roads; and last, but not least, our boys and girls can have their wheelrides every month in the year, whether it rains or shines. But a few months ago our people arose in their might and formed a law-and-order committee to stop the illegal sale of strong drink in this town of Medina; and is it any thing wonderful that the crusade against intemperance was almost immediately followed by a like crusade for *good roads?*

I have thought best to give the above in order that the people in other localities where GLEANINGS goes may go to work in like manner to establish good roads; and before I drop the matter, I wish to offer two more suggestions. The first one belongs to Mrs. Root; but she would "scold" if she knew I was going to give her the credit here in print. It is simply this: When you start out with the men and teams to do heavy work during the hot months of July and August, provide plenty of good drinking water for the *horses* as well as for the men. I have just been out to tell the teamsters that they drive, say, a quarter of a mile to our watering-trough, and water the horses about three in the afternoon. They all agreed that it would be an excellent idea, but they said it would take a little time to do it. Mrs. Root is always thinking about the horses in such a time as this, and I presume there are other women who feel just as she does about it—at least I hope so.

The second thing is, to be sure your scrapers, plows, doubletrees, clevises, chains, and every thing, are all on hand in good order before you start in with half a dozen or more teams. A new scraper was just unloaded from the cars. When we came to put it together we found the holes were a little too small for two of the most important bolts. Several teams and men had to stand still while somebody went away for a large round file. If the manufacturer had been on hand while the men fussed to get those bolts in place, I *hope* he would have formed a mighty resolution never to send such a machine to farmers again without knowing that the bolts would all *go* where they belong. Half a dozen teams will do a tremendous amount of work in a day, provided somebody takes the responsibility of seeing that the tools are all in perfect order, so there can be no hitch and a consequent "sitting in the shade" while waiting for things to *be* fixed.

Special Notices by A. I. Root.

THE L. A. W. MEET IN BOSTON.

No preventing providence, I expect to spend a week or ten days in Boston and vicinity somewhere between the 15th and 25th of the present month. If any of the friends would care to see me I might make them a brief visit, if other engagements will permit. I shall probably visit our good friend Manum, of Bristol, Vt.

STRAWBERRY-PLANTS.

We have a very nice stock of potted plants ready to ship at 3 cts. each, by express; 4 cts. each by mail. Nick Ohmer will be double above prices. Please remember our potted plants are sent either by mail or express with jadoo fiber on the roots. Layer plants will probably be ready Aug. 15. It depends considerably on the amount of rain we have, as to whether we can furnish layer plants at the above date at usual layer prices as per our seed catalog.

ONION-SETS.

We are now harvesting our winter onion-sets, and also our Acorn-top onion-sets. Price of the winter, 10 cts. per quart; 50 cts. per peck; $1.50 per bushel. Price of the Acorn-top onion-sets, just double the above prices. If wanted by mail, add 10 cts. per quart for postage and packing. There has been some discussion about large sets or small ones. If you get small sets, of course there will be ever so many more in a bushel, and they are less liable to run up to seed. Some of our customers, however, prefer the large sets; and we have some winter onion-sets grown on very rich ground that are almost as large as a small hen's-egg. You can have either kind at the same prices. We are short on American Pearl onion-sets to be planted out in September; but we are trying to make arrangements to purchase some of the Philadelphia growers. Prices will be given later. We have a limited supply of Prizetaker onion-sets. Prices will be the same as for the Acorn-top.

SOWING BUCKWHEAT AND CRIMSON CLOVER IN AUGUST.

The best crop I ever grew was sown August 15. Of course, when sown as late as this there is danger of getting caught by frost; but as buckwheat is a cool-weather plant, it does very much better if sown so as to just escape the frost. Another thing, if you do not get a crop of ripened seed you will have a lot of bloom for the bees, and it is worth all it costs to turn under to enrich the land. If frost kills it, plow under at once and sow it to rye, and plow under the rye in the spring, and put in corn or potatoes or whatever you choose. We still have a surplus of nice buckwheat for seed at $2.00 for a two-bushel bag, bag included. Put in crimson clover with your buckwheat; and when the frost kills the buckwheat the clover will be nicely mulched to enable it to stand the winter; and if put in as early as this in any kind of decent ground it ought to winter over with you as well as it does winter after winter here in Medina. The finest stand of potatoes I ever saw in my life is where we turned under crimson clover while in full bloom in May. Please notice our prices for crimson clover (home-grown) are much lower than prices made by any of the seedsmen—only $2.50 per bushel. This price lasts, however, only so long as our supply holds out.

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* The only objection to this voluntary work in the way of doing business is that there are always some who are abundantly able, but who will not do any thing if they can avoid it. Such people must be brought into line by personal exhortation. Let the neighbors, a lot of them, go to these objecting neighbors, and in a neighborly sort of way present the importance of the undertaking. If you do it in the right spirit you will get something, at least, from everybody along the route or in the neighborhood. I have just been doing that sort of work, and I have succeeded beyond my expectations. We have become better acquainted with each other, and we are as a neighborhood more united than we have been for years past.

SWEET-CLOVER SEED WANTED.

We can use either the hulled or unhulled. Mail us sample, tell us how much you have, and we will name prices.

SPECIAL NOTICES BY BUSINESS MANAGER

ADVANCING PRICES.

Owing to the increased cost of materials the price of very many goods listed in our catalog will have to be advanced more or less. We expect soon to begin publishing in this department the advance prices for next season, and these advance prices will take effect when published unless otherwise specified.

Window-screen wire cloth is advanced ½ ct. a foot, making cut prices 2 cts. a foot, and full rolls 1¾ cts. per sq. foot. Standard wire nails advance 2 cts. per lb.; 15 cts. per 10 lbs.; $1.50 per keg. Fine flat-head nails, advance about 20 per cent. Double-pointed tacks, advance 5 cts. a lb. Record lever-seal pails, advance 2 cts. each over catalog price. Square cans, advance 1 ct. per gallon, which makes boxes of two 5-gal. cans $7.00 for 10 instead of $6.00. Still further advances will likely occur in these and other articles.

Queens, Queens, Queens.

We are headquarters for Gray Carniolan and Golden Italian queens. Untested queens, 65c; tested, $1.25; select tested, $2.25. Satisfaction guaranteed. Never saw foul brood. For prices on large orders, nuclei, full colonies, and imported queens, write for free descriptive price list.

Testimonial.

MEDINA, OHIO, May 29, 1899.

Gentlemen:—The nucleus of Carniolans you sent us came to hand promptly, in fine order. Have examined them nearly every day and find them very gentle indeed. Have a colony of select Italians, and in some respects the Carniolans seem easier to handle.

Yours truly, THE A. I. ROOT CO.,
Per A. L. Boyden.

F. A. Lockhart & Co., Caldwell, N. Y.

QUEENS! QUEENS!

Untested Italians, 50c each; tested, $1.00 each.
Queens large, yellow, and prolific. Address

E. W. HAAG, - - CANTON, O.

FOR SALE.—Five acres *choice* improved land inside corporation of 1200; also residence and two lots, 146 colonies Italian bees and fixtures, one trained bloodhound and five pups. Reason—change of location and occupation on account of sickness.

Address ELIAS FOX, Hillsboro, Wis.

We carry a stock of goods valued at $1,500,000.00

We receive from 10,000 to 25,000 letters every day

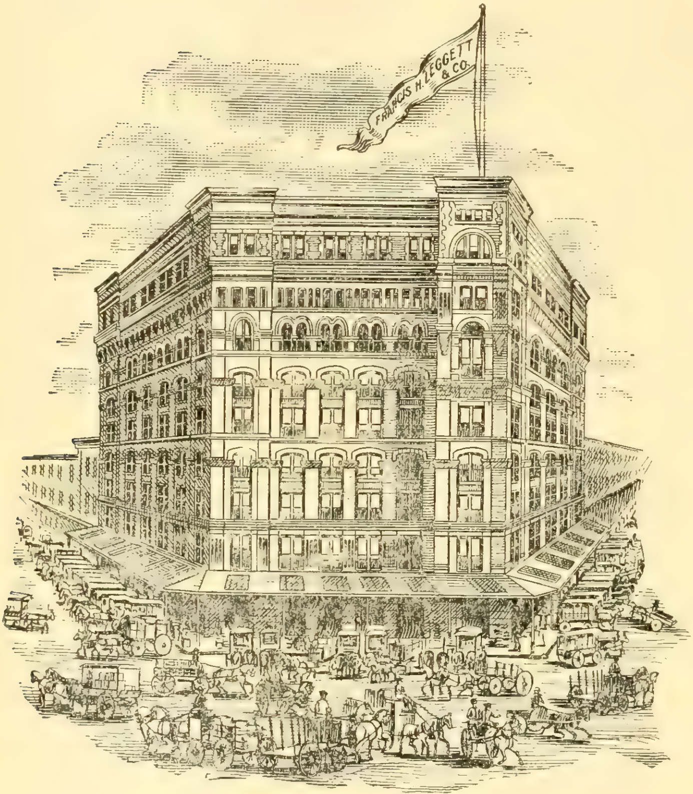
We own and occupy the tallest mercantile building in the world. We have over 2,000,000 customers. Sixteen hundred clerks are constantly engaged filling out-of-town orders.

OUR GENERAL CATALOGUE is the book of the people—it quotes Wholesale Prices to Everybody, has over 1,000 pages, 16,000 illustrations, and 60,000 descriptions of articles with prices. It costs 72 cents to print and mail each copy. We want you to have one. SEND FIFTEEN CENTS to show your good faith, and we'll send you a copy FREE, with all charges prepaid.

MONTGOMERY WARD & CO. Michigan Ave. and Madison Street
CHICAGO

FRANCIS H. LEGGETT & CO.,

WEST BROADWAY, FRANKLIN AND VARICK STS.,
NEW YORK.


FRANCIS H. LEGGETT & CO.

Wholesale
Commission
Department.
Maple Sugar,
Maple Syrup,
Beeswax,
Honey.

CAR LOTS A SPECIALTY.

HONEY Our statistics show an ever growing demand for honey among consumers, and we anticipate a period when honey will be as common and necessary a dish upon dining tables as butter is now. Our enormous dealings in honey have constrained us to separate this product from our general stock of foods, and organize a

HONEY DEPARTMENT in which we handle honey by the crate, barrel or car load We purchase from the producer only, for our own account for cash, or receive honey upon consignment, under limitations of selling prices, with liberal cash advances when requested. Quotations furnished upon application, for any variety or quantity of honey, either buying or selling. We are represented in every state of the union, as well as in many European states Over one hundred of our men are constantly travelling amongst the retailers and jobbers of groceries in the United States. In this way we find an outlet for all grades of honey. We would say to shippers that the market at present is in good shape for new **EXTRACTED** or **COMB HONEY.** We can also market your **MAPLE SYRUP** and **MAPLE SUGAR,** our dealings in these are very heavy. We extend thanks to our shippers for favors of the past, and hope for a continuance of their shipments.

Two Letters.

Since I began selling queens of this superior stock, I have received a great many letters on the subject. Two of these appear below. I will be frank enough to say that they were chosen because they illustrate so strongly the difference there is in different strains of bees. The first is from a customer in Indiana. He gave me permission to use the letter, but said that the institution with which he is connected would not approve of the use of his name in an advertisement. Here is the letter:

OLDENBURG, IND., June 14, 1899.

MR. W. Z. HUTCHINSON, FLINT, MICH.

Dear Sir:—Your postal is received. All I ask is that you send me a good queen. I have lost patience in buying queens. If they don't turn out hybrids, crosser than the ones I already have, then they are the "golden Italians," which are as lazy as they are prolific. This is a good locality for bees, each colony yielding from 75 to 125 pounds. The "golden Italians," however, do not furnish such amounts. From a colony of that variety, that I had last year, I got only ten partly finished sections. It is needless to say that I pinched the queen's head. Yours truly, ——— ———.

This man must have been unfortunate in his purchase of golden Italians, as I have had some strains of "goldens" that were excellent workers, but his experience shows what a great difference there *may be* in different strains of bees.

The other letter is from a well-known bee keeper, and reads as follows:

MIDDLEBURY, VT., June 18, 1899.

Friend Hutchinson:—In looking over the last Review I noticed an advertisement of queens from a $100 queen. If you have something that is choice I want it. You know that I believe in improvement of bees by careful breeding, and I am now working along that line. Last year I bought from ——— ——— one of his choice queens, for which I paid him several dollars, but I would not sell her now for many times what she cost me. The bees reared from her daughters are very superior honey-gatherers, and I expect that she will be worth more than $100 to me before the season is over. I believe that there has not enough attention been paid to breeding bees for business. It is somewhat difficult for a bee-keeper with hundreds of hives to look after, to breed as carefully as one who makes of this his lifework.

As ever yours, J. E. CRANE.

It is true, as Mr. Crane says, that the bee-keeper with hundreds of colonies finds it difficult to do as careful work in improving his stock as can be done by some breeder who makes a lifework of this point.

As stated in former advertisements, I have the handling of queens from a stock of Italians upon which a good man has been at work for twenty years, selecting the best honey-gatherers *each year* to breed from, and crossing them, so far as possible, with drones not akin. To produce a superior strain of bees has been his sole aim during all these years; and my experience with this strain, and my correspondence with others who have tried it, have proved to me that he has attained a fair degree of success. The chief value of this stock lies in its industry—its ability to store large quantities of surplus. Then comes its hardiness—its ability to winter well. Then it is very peaceable—easy to handle. It also caps its honey white—as the blacks do theirs.

The price of the queens is $1.50 each, but I guarantee safe arrival, safe introduction, and purity of mating; and at any time within two years, if a purchaser feels that he has not got the worth of his money, he can return the queen, and get his money back, and 50 cents to boot to pay for his trouble.

If you are interested in this matter, and have not read my advertisements in the last few issues of Gleanings, turn back and read them, as they give particulars not given here.

I said that the price would be $1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the REVIEW. Any one sending me $1.00 for the REVIEW for 1899 can have one queen for $1.00; that is, I will send one queen and the REVIEW for 1899 for only $2.00. Of course, this special offer is made for the sake of getting the REVIEW into the hands of those who are unacquainted with its merits. Orders will be strictly in rotation.

W. Z. Hutchinson, = = Flint, Michigan.

Bee ⁕ Supplies.

Root's Goods at Root's Prices.

POUDER'S HONEY-JARS,
and every thing used by bee-keepers.
Low freight rates; prompt service. Catalog free.

Italian Queens, 4 and 5 banded, not a hybrid in the yard. Untested, 75c. Tested, $1.00.

WALTER S. POUDER,
512 Massachusetts Ave., Indianapolis, Ind.

In writing, mention Gleanings.

CHAS. ISRAEL & BRO.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.

Honey and Beeswax.

Liberal Advances made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

Cartons

for comb honey. If you will need any, send for sample. A better grade of cardboard is used than by most manufacturers, and the price is right. Odd sizes furnished in 1000 lots. Special price on quantities.

Shipping-cases and Honey-jars

in a variety of styles. Catalog free, describing full line of supplies.

Italian Queens.

We own two apiaries, and our bees are "hustlers" for honey. "All yellow" Tested Italian queens, $1.00 each; three for $2.50.

I. J. STRINGHAM,
105 PARK PLACE, - - NEW YORK.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

In writing advertisers, mention GLEANINGS.

GLEANINGS AT REDUCED RATES

We do not need to tell about our journal, for it will speak for itself; but as an extra inducement we make the following low offers:

OFFER NO. 1.

For 25 cts. we will send GLEANINGS from the time your subscription is received till Jan., 1900. If you send in your order promptly you will get 6 months for only 25 cts.

OFFER NO. 2.

For $1.00 we will send an untested Italian queen, worth 75 cts., and GLEANINGS one year.

OFFER NO. 3.

For $1.00 we will send GLEANINGS the rest of this year, and all of next year; that is, from the time your subscription is received till Jan., 1901. The sooner you take advantage of this offer, the more numbers you receive.

Old as well as new subscribers may take advantage of these offers; but all arrearages or back subscriptions must *first* be paid, at $1.00 per year. Address

THE A. I. ROOT CO., MEDINA, OHIO.

IF YOU WANT BEES

that will just "roll" in the honey, and that are wonderful red-clover workers, also gentle to handle and exceedingly hardy, then try Moore's strain of Italians—the result of 20 years of careful breeding by selecting the finest honey-gathering stock each season from which to rear queens, and stocking my apiary with drones reared from other fine honey-gathering stock not akin. Send for circular, and see what my customers say. Warranted queens, 75c each; 6 for $4.00; 12 for $7.00 Select warranted, $1.00; 6 for $5.00; 12 for $9.00. Strong three-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Those who never dealt with me I refer to A. I. Root, who has purchased of me over 900 queens.

J. P. Moore, Lock box 1, Morgan, Pend. Co., Ky.

QUEENS. Either five-banded golden or from imported Italian mothers, 60c each; 6 for $3.00. Breeder, $1.50. I warrant safe delivery and satisfaction, or no pay. Give me a trial.

CHAS. H. THIES, Steeleville, Ill.

QUEENS. Reared from Italian mothers. Warranted purely mated No better stock can be had at *any price*. 60c Tested, 80c. Try them. A. J. DAUTERIVE, Lcreauville, La.

Root's Goods for California.

We have just received a large carload of sections, extractors, smokers, veils, etc., direct from the factory, and are prepared to supply bee-keepers with the same promptly. Do not send a long distance and pay high freights. Write for our prices.

M. R. MADARY, - Fresno, California.

Superior = Italian = Queens.

Having purchased one of the daughters of W. Z. Hutchinson's one-hundred-dollar queen, advertised in Gleanings, I am now breeding from her, and the queens are fine indeed. They are reared under the most favorable conditions, by Doolittle's method. Fifty cents each; ½ doz., $2.50; dozen, $4.50. Safe arrival.

W. J. FOREHAND, - FORT DEPOSIT, ALA.

Special Offer... For the next 60 days we will sell one warranted queen at 50 cents. These queens are warranted purely mated; half dozen, $3.00; dozen, $5.50. Address

LEININGER BROS., FT. JENNINGS, O.

Your Need is shipping-cases, some five-gallon cans, a lot of those new Danz. cartons. Send for sample carton and prices, and be surprised.

Our Desire is to satisfy your need. We can do it with Root's goods at Root's prices. Cash paid for wax. Send for catalog.

M. H. HUNT & SON, BELL BRANCH, MICH.

BLOOD DOESN'T come out of turnips, nor GOOD QUEENS from poor stock, shiftless methods, or unfavorable conditions. My queens are reared RIGHT—by Doolittle's method—either from the best breeder of my golden stock or one of the BEST queens Doolittle ever owned. Your choice. They are large vigorous *business* queens, from selected, large, well-fed cells. WARRANTED queens. 50c each; dozen, $5.50. SELECT WARRANTED, 75c; six for $4.00. Sent promptly. Free catalog. Special rates for large numbers.

J. B. CASE, Port Orange, Fla.

Queens by Return Mail.

Daughters of best imported Italian queen mothers; reared by Doolittle method: warranted purely mated to drones of imported stock from a different source—hence, a direct cross. Fourteen years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens 50 cts. each. Safe delivery and satisfaction in every case, or money refunded.

L. H. Robey, Worthington, W. Va.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—For cash, No. 1 white honey in Danz. 4×5 plain sections. Write for particulars. Four sizes of Prize cartons for comb honey, and 66-page book, "Facts about Bees," for 6 cts. in stamps.

F. DANZENBAKER, Box 66, Washington. D. C.

WANTED.—To exchange my Common Sense non-drip shipping-cases, holding 18 1¾-inch wide, or 16 wider sections, put up in lots of 50, laid down at your station for 8 cts. each, in exchange for No. 1 white and fancy comb honey at right prices in any quantity.

B. WALKER, Evart, Mich.

WANTED.—To exchange royally bred fox terriers for honey-extractor, bees, or bee supplies.

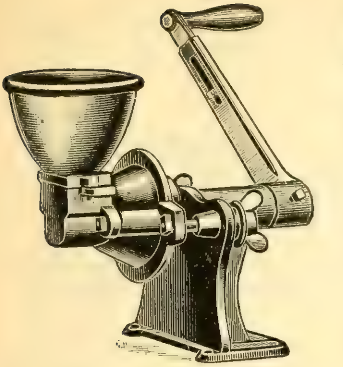
Address MIAMI KENNELS, Cincinnati, Ohio.

WANTED. — To exchange two-frame nuclei, also three-frame nuclei, for Barnes saw, or offers.

W. M. COCKERHAM, Ronda, N. C.

WANTED.—To exchange one Excelsior honey-extractor — three frames of any size — cost $11 00 new, used but little; also four dozen pepper-box bee-feeders, new, for honey, bees, or offers.

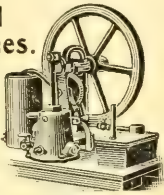
Address THEO. BENDER, Canton, Ohio.



Do It Yourself.

Be your own Miller.... Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nut-meal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.** Address **The Frank Machinery Co., Buffalo, N. Y.**

In writing, mention Gleanings.

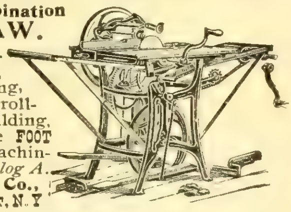


Pierce FARM Engines.

3-4 and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. Pumping Engines all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO.,
BOX 17. Racine, Wis.

In writing, mention GLEANINGS.



Union Combination SAW.

For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line **FOOT and HAND POWER** machinery. *Send for Catalog A.*

Seneca Falls Mfg. Co.,
44 Water St. Seneca Falls, N. Y

In writing, mention Gleanings.

GOOD WHEELS

MAKE A GOOD WAGON. Unless a wagon has good wheels it is useless. **THE ELECTRIC STEEL WHEELS** are good wheels and they make a wagon last indefinitely. They are made high or low, any width of tire, to fit any skein. **They can't get loose, rot or break down. They last always.** Catalog free.

Electric Wheel Co., Box 95 Quincy, Ills.

In writing, mention Gleanings.

WANTED.—Samples of American and Foreign Honey. I am making a collection of samples of honey from different sources, and shall be pleased to hear from parties in any locality who can supply me. I have only some of our most common honeys now, so can likely use any variety that may be offered. Would like to exchange with as many as possible.

A. L. BOYDEN, Medina, O.

EXTRACTED DEPARTMENT.

YEARS ago Mr. Heddon used to say that if some one in whom he had confidence could read all of the bee journals, select the articles that were of real value, and gather them together into one journal, he would gladly pay ten dollars for such a journal. This is exactly what is done by the Bee-keeper's Review. Its editor reads all of the bee journals published in this country; and, so far as space permits, gives the best that is to be found in their pages.

To become a subscriber to all of the bee journals published in America would cost at least five dollars. A subscription to the Review costs only one dollar; and the man who reads the Review gets the cream of all of the bee journals; not only of this country, but of Europe as well—certainly nothing of importance in the other journals is allowed to pass unnoticed.

Not only does the Review copy the best articles that appear in the other bee journals, but it comments upon them. Each article is appropriately introduced; the reason given why it is considered worthy of being reproduced; and at its close the salient points are enlarged upon; praised or condemned as the occasion demands, and additional thoughts, views, and experience given at considerable length. In this way the Extracted Department is raised from a mere parrot-like repetition of what appears in other journals, to one that has life, personality, and vim.

Send ten cents for three late but different issues, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

Adel Bees ARE not Italians; they are GOLDEN Carniolans, and practically a non-swarming, non-stinging strain of bees, great honey-gatherers, and sure to winter. Tested queens, each, $1.00; six queens, $5.50, or $9 00 per dozen. Every thing guaranteed. Bock giving 37 years' experience in rearing queens sent free.

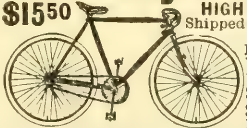
HENRY ALLEY, Wenham, Mass.

Albino Queens. If you want the most prolific queens, if you want the gentlest bees, if you want the best honey-gatherers you ever saw, try my Albinos. Warranted queens $1.00; untested, 75 cents.

J. D. GIVENS, Lisbon, Texas.

WARRANTED QUEENS from imported mother, 50 cts. Hybrid queens, 25 cts.

J. B. HAINS, Bedford, Ohio.



No Money in Advance!

$15.50 HIGH GRADE BICYCLES Shipped anywhere C. O. D., with privilege to examine Latest styles for Men Women, Boys and Girls, well made and durable.

$60 "Oakwood" $24.50
$50 "Arlington" $22.00

No better wheels made Others at **$10, $13.50, $15.50, $17.50 & $19.50;** all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

In writing, mention Gleanings.

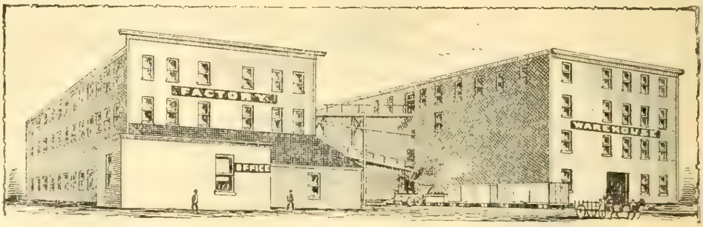
Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

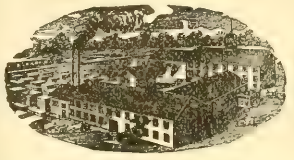
We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.



Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.



BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **Tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address E. KRETCHMER, Red Oak, Iowa.

In writing advertisers, please mention Gleanings.

July Prices on Queens. : : : :

Large yellow queens from fine Italian stock, the best of honey-gatherers. Untested, 50c each; $6.00 per dozen. Tested, $1.00 each. Orders filled promptly, and satisfaction guaranteed.

J. W. K. Shaw, : : Loreauville, La.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

QUEENS. Untested, warranted purely mated, after July 1, 55 cts. each; 6 for $3.00. Select tested, $1.00 each; 6 for $5.00. Extra select breeding queens, $2 00 each. The very best of golden Italians. E. A. SEELEY, Bloomer, Ark.
P. O. M. O. Office, Lavaca, Ark.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Italian BEES AND QUEENS. Queens, $1 00. Bees by the lb., $1.00. Nuclei, two frames with queen, $2.00; one frame, $1.50; each additional frame, 50 cts. each. **Mrs. A. A. Simpson, Swarts, Pa.**

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

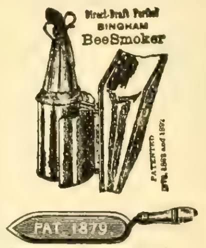
Smoke Engine (largest smoker made.)	4-inch	stove.	Doz.	$13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	"	9.00;	"	1.10
Conqueror	3-in.	"	"	6.50;	"	1.00
Large	2½-in.	"	"	5.00;	"	.90
Plain	2-in.	"	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	"	4.50;	"	.60
Honey-knife			"	6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

CHICAGO.—At this date very little comb honey has come on the market of this season's yield, and none of it would grade more than No. 1. It has sold at 12@13. Not any dark or amber offered. Extracted sells readily at 7@8 for white; amber, 6½@7¼; dark, 6@6½. Beeswax, 25@26, with an easier feeling.

R. A. BURNETT & Co.,
Aug. 9. 163 S. Water St., Chicago, Ill.

NEW YORK.—Our market never was in better shape for comb honey, old stock being entirely cleaned up. There is a good demand now for new crop, and same would find ready sale at following prices: Fancy white, 13; No. 1 white, 12; fancy amber, 11; No. 1 amber, 10. Extracted continues in good demand, with market firm at following prices: Fancy Florida, 7½; choice Florida, 6½@7; amber, Florida, 5¾@6; other southern, per gallon, 65@70 for choice, and 55@60 for choice, and 55@60 for common. No demand for buckwheat at this time. Beeswax dull at 25@26.

HILDRETH & SEGELKEN,
Aug. 9. 120, 122 West Broadway, New York.

ALBANY.—Honey market quiet; very little doing. Expect new crop in soon. Beeswax quiet, 25@28.

MACDOUGAL & Co.,
Successors to Chas. McCulloch & Co.,
Aug. 10. Albany, N. Y.

PHILADELPHIA.—Honey arriving very freely, but high prices prevail; not much demand yet till next month. White fancy comb, 14@15; amber, 12@13. Extracted, fancy clover, 10c; amber and light, 7@9. Beeswax, 27c.

WM. A. SELSER,
Aug. 10. 10 Vine St., Philadelphia, Pa.

MILWAUKEE.—We are now receiving some shipments of very fine-quality honey from the new crop, both section and extracted. The market is in good condition, and some demand having made sales, which allows us to quote as follows: Fancy 1-lb. sections, 14@15; No. 1, 13@14, old amber, 10@11. Extracted, in barrels and kegs and pails, white, 7½@8c; dark, 6½@7½. Beeswax, 25@27c.

A. V. BISHOP & Co.,
Aug. 10. Milwaukee, Wis.

FOR SALE.—First-class alfalfa comb honey in 24-lb. cases, $2.00 each. Extracted, ten one gallon cans, $7.00. R. T. STINNETT, Apiarist, Mesilla Park, N. M.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
163 South Water St., Chicago, Ill.

FOR SALE.—1000 lbs. of comb honey from white clover and basswood in 12 and 24 lb. no-drip cases, at 11½ cts. per lb., f. o. b here.
CHAS. OBERLE, Menomonie, Wis.

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WANTED.—Quantity lots of comb and extracted honey. Car lots preferred. B. WALKER, Evart, Mich.

NOTES FROM FOREIGN BEE JOURNALS.

OVER the sea, in Europe, science pure and simple has reached greater heights than in this country. In the matter of applied science, Americans probably stand at the head. The scientists of the old world discover facts and principles—we make use of them. In this respect the science of bee-keeping is no exception. The seed ideas for many of the improvements in apiculture were European in their origin. This peculiarity of foreign bee-keeping is reflected, to a certain extent, in the foreign bee-journals. If American apiarists, with their intense propensities for the practical, could have the privilege of reading over the experiments and theories of their more scientific foreign brethren, excellent results might follow.

There is another phase of the matter worthy of consideration. In some respects foreign apiculture is different from ours. Its methods may not always be desirable models for us to follow; but the very fact that we are different is a reason why we may gain something by comparing them with our own. The thoughts aroused by comparison may lead to improvement in our own methods.

Last, but not least, the foreign bee-journals contain much that is good and suitable for us to put into practice; hence, taking it all in all, the Bee-keepers' Review feels that not the least of its departments is the one that gives the bee-news from over the sea. It is presided over by Mr. F. L. Thompson, of Denver, Colorado; in whom is happily united the accomplished linguist and the practical apiarist.

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L. H. Robey, Worthington, W. Va.

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Untested Italians, 50c each; tested, $1.00 each. Queens large, yellow, and prolific. Address

E. W. HAAG, - - CANTON, O.

Queens by Return Mail.

Five-banders that are reared in a yard that has no 3-banded queens or 3-banded drones in it. Bear in mind I make a specialty of rearing only the 5-banders. Fifty cents each, $6.00 per dozen. Tested, $1.00 each.
DANIEL WURTH,
Falmouth, Rush Co., Ind.

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Romeo, Mich., July 10, 1899.
Mr. Quirin, Dear Sir:— The queens you sent me have turned out the yellowest bees in my apiary; are gentle to handle; are large, and well marked.
C. C. CHAMBERLAIN.

Blockley, Iowa, July 5, 1899.
Mr. Quirin, Dear Sir:—The queens got of you last year are giving good satisfaction—better than some untested queens I paid $1.00 for to breeders who will sell for no less at any time of year.
Yours truly, EDWIN BEVINS.

Address all orders to

H. G. Quirin, Parkertown, Erie Co. Ohio.
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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
Published by The A. I. Root Co.
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STRAY STRAWS FROM DR C. C. MILLER

A SHORT VISIT from a long man gave me a very pleasant evening and morning. It was W. Z. Hutchinson, wandering over the land with his beloved camera. But he didn't "camer" any thing here. Rainy.

COGGSHALL is right. A hat-brim wide enough to shade the veil is good. The most trying time is after 6 P. M. At such times I often have to raise my arm to shade my veil before I can see eggs. With a broad brim, tipping the head to one side would more easily accomplish the same purpose.

I'M GLAD, Bro. Doolittle, to hear you say, p. 577, that you were not asking those questions in a censorious way. But you seemed to be making me a sinner above all others, and piling on my shoulders the accumulated guilt of the whole fraternity for the past 25 years. And I'm waiting to have you tell us why you waited till this late day to call attention to the error. Or have you always called Italians maroon, and said they weren't yellow?

THE CALIFORNIA echoer, p. 567, thinks my intellectual machinery out of gear because I don't see that *squaw* is a more degrading term than *Indian*. The gearing is all right, Rambler, only it's adjusted for this locality, where we don't have any Indians, and go by the dictionary, which makes *squaw* the correct term to apply to any Indian woman or girl. With you, it is evidently applied only to the low-down trash; but I don't know what is your corresponding term for a good and pure Indian woman.

GLAD TO SEE Rambler touch up that idea of selling a short-weight section and having the customer think he's getting a pound. One great trouble is that we can't produce sections that run the same weight; and if we could get them all just alike, the next season would make them heavier or lighter. [Say, doctor, I've a notion to take you to York State so that you can have your eyes opened on the ten-cent-section matter. Seeing is believing, you know. A great scheme, that, to take you and Rambler off together.—ED.]

THAT TEST of A. J. Wright, p. 574. for bees' feet, is very bright, and I think the white paper would show that the bees' feet have been slandered. How should the feet be dirty when they touch only the air and the flowers? But Mr. Wright is away off when he attributes the dark color to the habits of us bee-keepers. Isn't every thing just as black in a nest in a bee-tree where no bee-keeper has interfered? If you say it's black because man has not interfered to prevent the blackness, I may ask, "If you should clean the bottom-board every day would you prevent the darkening of the brood combs?"

I'VE A SUPER of tall sections that are beautiful to behold, reared in a T super with fences, and a rim to raise the super. I'm just a little bit afraid I may have to change to that style, but I'm not going to gratify a certain editor by telling him so. [It is a little surprising how the plain section and fence are vindicating themselves in the opinion of unprejudiced persons. From the very start, after I saw what the bees said of them, I knew they would be able to more than hold their own, and they are. But it is not good policy to publish all the good reports, as such a policy would be construed as a desire on the part of the manufacturer to boom his own wares.—ED.]

YOU SAY, Mr. Editor, that I don't tell you whether the season at Marengo is a failure. Well, it's a strange season. A spurt in June didn't last, and toward the latter part of the month it looked as if feeding might be necessary in the Wilson apiary. Clover was abundant, but the dead-and-alive condition continued till about July 20, since which time there has been some storing; and at this date, Aug. 8, clover seems just as good as ever. The slow yield may continue, or it may stop to-morrow. If it should stop now, there will be in the home apiary 25 pounds or more to the colony, much of it unfinished, and much less in the Wilson apiary, which in other years has always been the best. The little Hastings apiary is working altogether for increase, but seems to be getting a good deal of honey.

YOU SPEAK, p. 573, of having some one with the necessary micrometer measure dorsata, Mr. Editor. When you find the micrometer, couldn't you get the difference in diameter between worker-cells freshly built and those in combs 25 years old? I think the chief reason why British bee-keepers think comb too old after five years is because they think the cells become too small, and I doubt if there's any appreciable difference. [We have micrometers now that will measure the inside diameter of any worker-cell to the ten-thousandth of an inch. Bring on your comb 25 years old, and we will caliper it, and show if there is any difference between that and comb recently built. But, say; the cells of some bees are larger than the cells of others, by a trifle. How do we know that the bees of 25 years ago (probably blacks) built just the same size of cell that the bees of to-day do? How are we going to prove any thing by measuring?—ED.]

TASTES DIFFER. Niver and other New Yorkers like to see on a plate a section of honey that is nice and dry, because no cells are filled next the wood. To me it looks far more luscious if the cut cells show, and it is surrounded by some of its own rich gravy. [When Niver presented his view I was inclined to think he was right; and now you have presented your notion, I have flopped again. There is no denying the fact that a chunk of dripping crystal honey has a sort of lusciousness about it that makes one's mouth water. A chunk of comb swimming in its own crystal sweetness reminds one strongly of the good old days gone by, and of how our fathers and grandfathers used to dish out honey in great chunks smeared "in its own rich gravy." Every one to his notion; and in saying this it is proper to remark that one can with plain sections and fences have either sort of feeling. If it is desired to have the cells filled clear out to the wood, then crowd the bees for room. If it is not desired, then give them another super as soon as the first one is pretty well under way.—ED.]

I DON'T QUITE SEE, Mr. Editor, what you're getting at, p. 571, where you think larvæ in drone-cells must be first given to queenless bees to start queen-cells. Why, with the Doolittle plan it's the royal jelly, and not the size of the cup, that makes the difference. Why shouldn't they start in the drone-cells just the same as in the artificial cups? I know they will in worker-cells, for I've tried it. [No, sir, 'ee! That is where you are wrong, doctor, or at least I think so. Royal jelly is something to be desired; but you will find, I *think*, that a very large portion, if not a majority, of drone-cells having royal jelly in them would not be converted into queen-cells if placed in a colony with a normal laying queen. The Doolittle cell-cups, although they are artificial, have the shape and general appearance of *real* queen-cell cups; while the drone-cells sawn off are any thing but queen-cups. Why should they start with drone-cells? All I know is that we have tried it, and the bees having a queen do not take to them; and, moreover, those who advocate the plan, or at least one who uses the method, speaks of being obliged to put these drone-cells with royal jelly, in *queenless* colonies to *get them started first*. But you know we are getting Doolittle cell-cups accepted in colonies having a laying queen. Does this not show that the *shape* of the cell has something to do with the matter? But, say; we have recently discovered that we can get Doolittle cell cups accepted having a larva and the *food of the ordinary* worker-cell in it, thus showing that royal jelly does not have so much to do with the matter as one might suppose. I say we have been successful, although we do not know that we shall always be. I'd like to see you get *drone*-cells with worker-larva food accepted, and worked into queen-cells. See answer to H. L. Jones, in this issue.—ED.]

I DON'T KNOW, Mr. Editor; but I think you're falsely accusing the bees' feet when you say, p. 575, "I have seen entrances of hives that were pretty badly smeared up with yellow, and have naturally concluded that this yellow was the so-called travel-stain, that came direct from the bees' feet." Now tell me, where did the bees get that dirt, that was so thick on their feet that it daubed the entrance? Yes, I've seen entrances daubed, and haven't you noticed that it's ten times worse at the entrance of a colony that's being robbed? When I've allowed bees to clean out supers, with an entrance for only one bee at a time, that entrance has become dark and sticky. I *think* it's the feces that the bees expel on reaching the open air, and the darkening of the combs is, as Cheshire says, from the contents of the bowels of the young bee in the cell [Dirt from bees' feet! Did I say any thing about dirt? I did say that the entrances of many hives I noticed were yellowed up; and this yellow, I think, is pollen and not dirt. If you take a strong magnifying-glass, and look at a bee as it comes in from the field in pollen time, you may find it has pollen all over it, even on its feet. Now, why could not this pollen be smeared on the surface of white combs? If so, wouldn't this be real travel-stain? But methinks bees walking over the bottom of their bottom-boards, and over black combs, sometimes carry over the surface of their beautiful sections some particles that are not pollen. May be it is dirt. But granting all this, I am quite willing to concede that *some* of this discoloration may come from the feces the bees expel.—ED.]

"THE FACT that, in the generality of cases, the coloring of foreign matter goes clear through the cappings," say you, Mr. Editor, p. 575. Don't you think you'd better make that "generality" "minority"? In my sections that are darkened, I don't believe there's one case in a hundred where the cappings are dark clear through. At any rate, I do *know* this: Let a section that's capped white as snow remain on the hive long enough, especially in the center of the super, and it will become dark. Now, don't you believe the white capping still remains white, with a dark coating over it? But I don't believe the feet have *any thing* to do with it. [No, sir. I firmly believe I was right in using the expression "generality of cases" Last winter I went over personally several thousand pounds of honey in our honey-room that had been bought from several *different parts* of the country; and if I remember correctly three-fourths of the so-called travel-stained faces showed on examination that the stain went *clear through* the capping. I believe that the average dark faces in comb are dark because they are dark all through; and yet I am willing to acknowledge that there is probably a travel-stain such as you speak of, the discoloration of which is only on the surface. That reminds me that Byron Walker was going to tell how to remove travel-stain—in other words, give us the secret of making a box that sells for 12 cts., sell for 14. He has already given me an inkling of the secret, but I prefer to let him give it himself when he gets to it. I will say this much: I think his plan will work —ED.]

YOU'RE ON THE RIGHT TRACK, p. 582, in offering a premium for good *working* stock, Mr. Editor. If the same pains had been taken in that direction that have been taken for color, the average yield would now be more than it is throughout the country. The right way is for *each* bee-keeper to breed from his best stock, and in the whole lot there will be some great improvements. I've one queen whose bees have filled, in this year of failure, 100 sections, and are still pegging away. You may count that queen will be a breeder next year if we both live. [I believe that two-thirds of the queen-breeders of the country pay more attention to color and uniform markings than to honey-gathering qualities. I know this from correspondence I have had with the different breeders who, in extolling the merits of any one queen, will say, for instance, that she will breed large yellow queens of uniform markings. While I like to have beauty, and should be glad if we could combine it with utility, yet, after all, *utility* is what we should seek. You say you have one queen whose bees have filled 100 sections in a poor year, and are "still pegging away." Say, what will you take for that queen? I do not care whether she is leather-colored or yellow; but in order to reproduce her kind she ought to be pure Italian, pure Carniolan, or pure something, otherwise her queens would sometimes take after one progenitor and sometimes another. While you are about it, tell us how old she is, her pedigree, temper of her bees, their markings, and how they appear to winter. Any one who has a queen that is away ahead of the others for honey, and is still "pegging away," would do well to write me. —ED.]

J. W. B., Va.—The purity of Italian queens is judged wholly by the markings of the worker-bees. Drones from pure queens vary so that they form a poor criterion by which to judge the purity of the queens themselves. Three weeks would give enough time to test the purity of a warranted queen.

PICKINGS
FROM OUR NEIGHBOR'S FIELDS.
BY "STENOG."

The days grow short, the nights grow long,
The harvest passes by;
The crop is short, and drones must move,
Lest all the workers die.

AMERICAN BEE JOURNAL.

The first page of the issue for July 27 has a view of the Dadant family—Mr. Chas. Dadant, his son Camille P., and three of the latter's sons, Louis C., Maurice M., and Henry C. It is a pleasure to look at even a picture of such a household, and we all owe Mr. York more than a vote of thanks for producing it so well. By the way, where are those girls Mr. Dadant told me about once?

* * *

Rev. L. J. Templin contributes a sermon on the need of taking bee-papers. It is an excellent summing-up of the way in which old methods are superseded by new ones. I have been so much interested in this talk that I dare not quote from it lest I take it all. A nickel can't be spent to better advantage than to send it to Mr. York and get a copy of his journal containing it. I wish Mr. Templin would tell us if there is not less reading done now, in the true sense of the word, than when he was a boy. Isn't it harder now to get people to read a paper that calls for thought than ever before? I believe it is. A good picture of Mr. Templin is given.

AMERICAN BEE-KEEPER.

Mr. Hill continues his interesting letters from Cuba. The insects of that island lead me to believe that a hybrid climate like ours, where Jack Zero reigns a good deal of the time, is preferable to one of perpetual heat.

* * *

C. Davenport says he does not attempt to sell honey-dew, as it would ruin the market. Nor does he feed it for winter stores, as it is unsafe food for winter; but for brood-rearing in the spring and summer it answers as well as the best white honey, and by its use brood-rearing is advanced, and a larger crop of honey secured.

* * *

Hon. John Ruffin, U. S. C., in writing from Paraguay, South America, has the following to say relative to the bees of that country:

> There are several kinds of wild bees in Paraguay, some of which build in subterraneous holes, the rest in hollow trees. Two years ago a colonist made a trial to improve one of the latter by gathering them into a proper hive, apparently without satisfactory results. If not all, at least some kinds are said to be without a sting; but one, a black bee of medium size, attacks the intruder by clipping the hair as if cut with scissors.
>
> Some years ago a German, von Gulich, introduced the European bee, and succeeded well, using modern hives according to Dzierzon's methods. His widow has continued this industry, and a few colonists followed with more or less success. Honey finds ready sale at good prices, likewise the wax, which is used extensively for making candles and matches.

Mr. K. Aoyanagi, of Japan, unites bees as follows :

> "In uniting two colonies I place the uniting-box on the stand I want them to occupy, insert the screen division-board, and place the colonies on opposite sides of the screen, allowing them to remain thus for three or four days, when the division-board is withdrawn and the work is done. This I find the best method I know of ; and if care is taken when putting the bees into the box, not to let a single bee from the opposite side to mix with the others, it may be done without the least quarreling or loss. For uniting swarms, they may be hived through the holes on opposite sides of the box; or an ordinary hive-body, with the screen board, will answer instead of the regular box; but in this case I confine the bees to the hive for two or three days, not permitting them to fly."

* * *

F. Greiner, in an interesting article on the disastrous wintering troubles last winter, admits he lost one fourth of his bees. Those wintered outdoors suffered from diarrhea, and fell an easy prey. Chaff packing had but little to do with the result, as there was but little difference between those packed and unpacked. Locality had much to do with the trouble. In places only two miles apart, in some cases the bees were all wiped out, and in others they came through without loss. Apiaries on the summits of hills suffered more than those in the valleys, thus teaching us a lesson in humility. Mr. G. thinks he might have reduced the loss to five per cent by removing all the natural stores and substituting sugar syrup, but that would have involved so much work as to be practically out of the question. Much still remains to be learned on this subject.

* * *

Mr. Hill finds in Cuba a few of those who don't need a bee-paper in order to learn how to keep bees. He describes one of these "bee-butchers," as he calls them, as follows :

> His hives stand flat upon the ground, and the sand has drifted far above the rotten bottom-boards. Rolls of moth-webs protrude from the entrances of hives that once contained a drone-laying queen or a laying worker, on a set of beautiful combs. He has charge of nearly 100 colonies, but does not know how many he has had, nor which colonies have swarmed. He has hived two that he "knows of" (and those on empty frames with 11 in a 10-frame body, and four out of the 11 without bottom-bars), but the rest of the swarms "all lit in them tallest trees," and he "couldn't git 'em." The honey season has arrived, and upon all colonies "that ain't strong enough" to take an upper story for extracting he gives a *half-story*, with sections. Extracting begins, and with two helpers he proceeds to the yard, opens a hive, removes two combs, carries them in hand to the tent, mashes and uncaps the greater part of their surface, slings out the honey, and starts to the apiary for two more frames of honey. He boastingly asserts that he, with but two boys only to assist, has extracted 27 gallons of honey in one day. But, "darn your bee-papers; I don't have to bother reading bee-books to know how to run bees." He says he contemplates making an exclusive business of honey production in the future, and is rigging up to manufacture foundation which will contain a cheaper material than beeswax; says he knows it will work, and that "the darned dealers have been charging" him "over 50 cents a pound for foundation work of half paraffine," and that he knows "how to mix it as well as they do."

GENERAL CORRESPONDENCE

REARING QUEENS IN FULL COLONIES.

Starting Cell-cups by Natural Methods.

BY HENRY ALLEY.

For a good many years I have had no trouble in getting all the cell-cups made that I needed, and in a way most natural for bees to construct them. This is the way I do it :

We will suppose that there are eggs or larvæ properly matured, from which bees will start queen-cells. The right age of eggs for this purpose is about 84 hours, reckoning from the time the eggs were deposited. Now, there is but one way to compel bees to start cell-cups, and that is by making them queenless. My way of preparing bees for this work is this:

I have a box, a duplicate of the regular brood-nest a full colony occupies, to the botton of which is nailed wire cloth. Over this wire, at the ends, are nailed ⅞-inch cleats to keep the bottom of the box above any thing it is resting on, so that the air can be admitted freely at all times. A frame cover is made, and that also is covered with wire cloth. When ready for the bees I take the cover of the box and go to any strong colony in the yard, remove the sections or whatever covers the frames, and place the wire cover on the hive. Then the bees are smoked at the entrance to drive in as many as possible, and also cause them to fill their sacs with honey. I also drum lightly on the hive. Now, to put the bees in such a condition that they can be brushed from the combs into a box, and not all take wing, I use a small amount of tobacco smoke. I will say plainly that this boxing-up of bees as above can not be done without the use of *tobacco* smoke. If rotten-wood smoke is used, nearly all of the bees will take wing and be in the air quickly ; but the to-

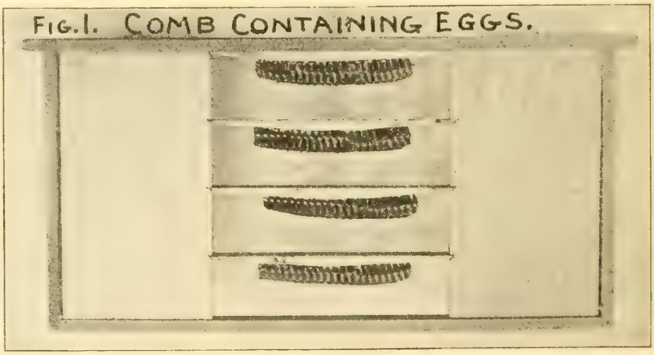


FIG. 1. COMB CONTAINING EGGS.

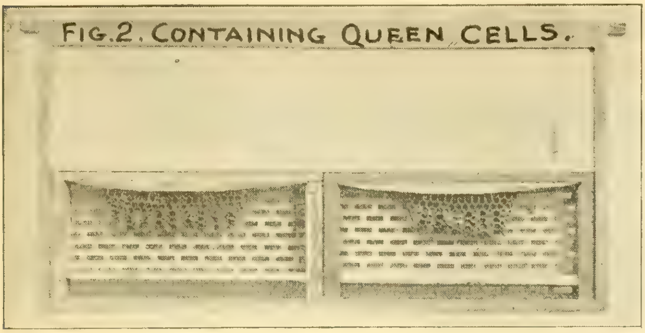


FIG. 2. CONTAINING QUEEN CELLS.

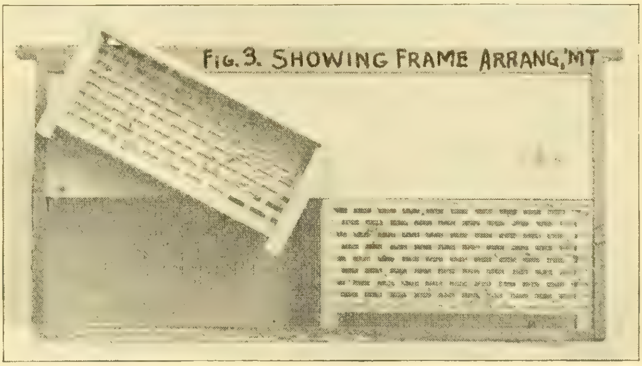
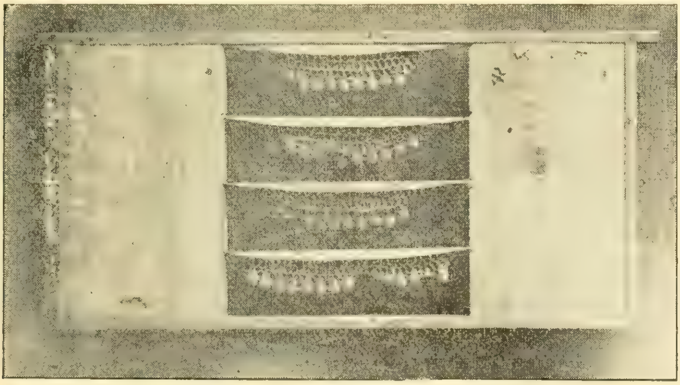
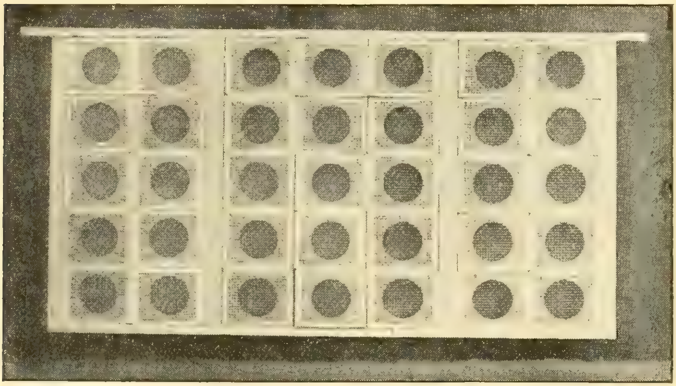


FIG. 3. SHOWING FRAME ARRANG'MT



bacco smoke puts them in just the right condition to be handled to your liking. In fact, they can be handled about as conveniently as so many beans. When the queen is found, the cover is placed on the box, and the bees left alone for several hours, or until they fully realize their queenless condition. Then the eggs are given them in this way: Cut from any brood comb, containing eggs that have just hatched, a piece about four inches square. Cut this piece in strips, running a knife through alternate rows of cells. Cut off about half the depth of the cells, and insert the fire end of a common match in each alternate cell, twirling it between the thumb and finger, thus destroying the eggs. Have at hand a shallow pan containing equal parts of beeswax and resin made quite hot over a kerosene-stove, and dip in the mixture the edge of the comb in which the eggs *have not been destroyed*, and quickly place it on a stick as represented in Fig 1. The illustration shows a standard frame in which are two pieces of wood having a space of 7½ inches between the pieces. The strips should be cut 7¼ inches long, and are kept in place by cutting notches in the wood ⅛ inch deep, using four pieces of wood to each frame, as shown in the illustration. On each piece of wood a strip of comb is placed. Two of the frames, containing eight pieces, are placed in a hive having no bottom or top. The hive is then filled with combs containing honey and pollen, *but not a particle of unsealed brood;* in fact, no brood at all should be used. Now jar the bees down to the bottom of the box by a sudden strike on the floor, and quickly place the one containing the combs over it and put on the cover. The bees will at once run up and take possession of the combs. If this is done in the morning the bees can be placed at night on the stand they previously occupied, and at once be released. I first place a bottom-board on the stand, and then raise the hive and place it thereon. By being careful, no bees are crushed. Many bees rush out and will take wing, but no harm will be done, as they soon return and enter the hive. While the bees are confined after being given the eggs they must be supplied with water, and kept in a cool place, and in the course of 24 hours a cell-cup will be started around each egg given them. Let the bees work on the cell-cups from 36 to 48 hours, after which they should be placed in colonies *having a queen not less than one year old*.

Fig. 2 represents another standard frame. One half of this frame is filled with wood, but, unlike the one described in Fig. 1, the wood is nailed in the upper half of the frame, and not at the ends, as in No. 1, as will be seen. One side of the open space is covered with wire cloth, and two smaller frames are used in this frame, having one of their sides covered with perforated metal firmly nailed to the wood. These frames are just 7½ inches between the vertical pieces, and are notched at the top so the strips of wood to which the cell-cups are made are held in place. The cell-cups are removed from frame No. 1, and then placed in the smaller frames, which are then inserted in frame No. 2, with the open side toward the wire cloth; then the frame is placed in the center of a powerful colony of bees, and *always* between two frames of brood. The result is, in three days more there is as fine a lot of queen-cells as one ever saw.



Twelve days after the eggs are given the bees, the cells should be transferred to nuclei, or, what I consider much better, to a queen-nursery. As this part of my story is given in a small book which I give away to all who apply, I will not take the space here to describe it.

Now, Mr. Editor, I feel bound to say that, by this process, I have produced queens much superior to those reared under the swarming impulse.

To the inexperienced this method may seem fussy. All I can say is that no one can rear queens without doing much hard, pretty fine, and fussy work. There are many fine points connected with the above that one must get acquainted with by actual experience. These particular points can not be explained in one short article. Catch on to them by experience. That is the proper way to do. The cells illustrated were begun and finished by bees. There is nothing artificial about them.

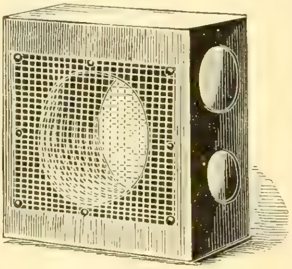
Later on I will describe the queen-nursery and its uses; also many other things connected with the queen-rearing business.

Wenham, Mass.

[The method Mr. Alley gives is essentially the one he has used for years, I take it, with the exception that he has incorporated into the plan some changes, so that we have before us the latest revised method.

Fig. 3 shows another view of what is shown in Fig. 2. The next shows how the prepared drone comb-cells in No. 1 are finally drawn out and completed into queen-cells. This cut shows the Alley queen-nursery, to which Mr. A. briefly refers.

This nursery consists of an ordinary Langstroth frame having fitted into it square blocks of wood ⅞ in. thick bored out in the center, and covered on both sides with wire cloth. Through one side or edge is bored a ¾-in. hole, or large enough to receive a queen-cell. The point of the cell, when inserted, projects down into the large opening; and when a young queen hatches she is confined until such a time as the apiarist can use her to the best advantage in some nucleus or queenless colony. To supply the young queen with food there is a plug of Good candy inserted in a hole just opposite the queen-cell, so the young virgin can be confined a day or so if necessary.



This queen-nursery, contain- 35 little cages, each supplied with a queen-cell, is inserted in any strong colony. Whenever a virgin is desired, all one has to do is to go to this nursery, take out the oldest virgin, and introduce her according to the methods that are recommended in the text-books.

This queen-nursery is the same thing as is used by Doolittle and ourselves, and is doubtless the best of any thing heretofore devised for the purpose.

The method of rearing queen-cells from *drone* cells, as recommended by J. D. Fooshe and H. L. Jones, is the same as the Alley method above described, with this difference, that any larvæ in the drone-cells must be removed, and each alternate cell be supplied with a worker larva from a select queen. Aside from this, the two methods are practically the some.

We have tried the two plans, the Alley and the Doolittle; but, taking every thing into consideration, we prefer the latter method with artificial cell-cups. The only possible objection to it would seem to be the making of the cups; but when one learns how, that is a very small objection; for he can make them, as I have pointed out, at the rate of 150 an hour; and then the Doolittle method does not require that the cells shall *first* be placed in queenless colonies to get them started. They may be placed right in the brood-nest of any colony, providing, of course, that said colony is stimulated daily if honey is coming in. At this time of year we prefer colonies having queens that they are about to supersede. Such colonies always take kindly to the Doolittle cell-cups, as the rearing and completing of them seems to be an act of simple preservation, and that is to supply themselves with a mother to take the place of the one that is about to be superseded.

But in comparing these two methods I do not wish to disparage the Alley method in the least. That he rears good queens, there can be no question, because some of the finest we have ever had were reared by Mr. Alley, presumably by this method. Two, yes, three, of his breeders we have found to be good ones, and we are breeding from them just as we are breeding from our own and Doolittle's stock. —ED.]

* * *

NIVER ON THE WITNESS-STAND.

Thin Sections; Profits on a Colony of Bees; Coggshall's Big Yield of Honey; Proper Size of a Brood-nest for the Buckwheat Country; Coggshall's Axioms

Continued from last issue

R.—A moment ago, Niver, you put in a proviso regarding the thickness of combs. What width of sections do you prefer for your ideal boxes?

N.—Our boxes are scant 1½ in the widest place, and there is an inset that leaves the top and bottom 1¼ scant.

R.—Yes, I remember you do not use, strictly speaking, no-beeway sections, although you you were a user of fences.

N.—A half bee space was in the sections and half in the fence; and, having a shallow cell, they will ripen and cap when it gets late in August, where our trouble all comes in getting our honey finished. They will cap and finish a good deal better in a shallow cell than they will in a deep one; therefore, in a thin section we get many more finished boxes than we do in a thicker section. Of course, you white-honey people have plenty of warm weather to finish your white honey, and have no trouble about getting the honey capped at the last end of your flow. Not so with the buckwheater, for when the cool weather is coming on toward the first of September it is difficult to get the bees to cap the honey in the sections; and we have to work differently from what you do in order to get that done.

R.—Yes, I understand what you mean—you are a buckwheater.

N.—As a honey-producer, yes; and that fact accounts a good deal for our preferences as to bees. We like black bees and Carniolans better than your yellow-ocher fellows.

R.—What is Coggshall's preference?

N.—Any thing that will sting, and produce honey.

R.—I fully believe that.

N.—Laying joking aside, and taking Coggshall's axioms, the four leading characteristics named in their order are: 1. Locality; 2. The man; 3. The bees, or type of bees; 4. Supplies.

R.—Yes, that is Coggshall all over.

N.—Well, he would not have it that way if it did not *pay* him.

R.—His fine dwelling, his barns—in fact, every thing about his place (except bee-supplies), all go to show that it does pay him. But you said a moment ago, Niver, that, if you wished to fatten your pocketbook, you would select the middle box as your standard. How much do you calculate to make off from a colony of bees, on an average?

N.—Well, I can't tell; but to go into details, I have averaged up five or six years, and with an almost total failure one year included, and I find I have averaged between $6.00 and $6.25 for the five years, per colony, spring count.

R.—My, oh my! that is better than they can do around here.

N.—Well, I am a buckwheater. My best colony last year gave me 175 boxes, or sections (*finished* sections, mind you), which averaged 11 cents apiece, or $19.25 in all. I see brother Dadant, with his "barns," is satisfied with $3.50 per colony.

R.—Yes, I believe that is his figure; but how much does Coggshall get with his in that rough-and-tumble-get-there kick-off-super plan?

N.—Let me see. In 1897, if I am not mistaken, he figured up 116 days' work during the year, and sold 39 tons of honey—78,000 pounds; now figure out per *day*, please, if you want to find out what systematized work accomplishes.

R.—Wait till I figure. That's 672 pounds per day; and at the very low price of 3 cents this would make over $20.00 per day; or, at 4 cents, nearly $27.00. Say, look here, Niver; Coggshall will be after you for giving away his private affairs.

N.—Well, he called on me a short time ago when on his way to a sanitarium for treatment and *rest*. I think I can outrun him now, so I will let it go.

R.—Rest! I should think the man would need one. Does he always work at that race-horse break-neck speed that I saw him working at when I visited him two summers ago?

N.—When you were there? Why, he was taking a *vacation* then, and had plenty of time to spare.

R.—He must be a counterpart of that man Harry Howe.

N.—No, Harry is merely a *pupil*—an *apt* pupil. By the way, what is the matter with Harry's being our best man in New York for foul-brood inspector?

R.—That would be a tiptop idea; but I had been casting my best endeavor for Frank Boomhower, not knowing that Harry was a possible candidate.

N.—But Harry has been taking a course in bacteriology in Cornell, and is probably the best-posted man we have in the country to-day.

R.—He is in a fair way to be, no doubt.

N.—He is quick, agreeable, and, what is more, he understands the whole business from A to Z, scientifically as well as practically. If he is appointed I shall be satisfied — abundantly so.

R.—So shall I. But, say; a moment ago you spoke about the Dadant (or perhaps, rather, the Draper) barns. How did these strike you — or, rather, do you favor, up in your buckwheat country, such large hives?

N.—Morton's experience, and Coggshall's, shows that a buckwheater will get more honey per colony in an eight-frame hive, when run for comb honey, than he can in a larger hive; and there is very little difference in manipulation, with us, between comb honey and extracted. The same manipulation produces like results.

R.—Did you ever try large hives?

N.—Morton started in with a ten-frame Simplicity. He next tried Dr. Tinker's two-for-a-cent hive, and settled at last on a nine-frame hive with eight frames in it, and a dummy. It is the most practical hive for our locality.

R.—Well, I sincerely hope you are right. I should be very sorry to have it finally develop that large hives, or barns, are *the* hive for the production of either comb or extracted honey. The Langstroth frame has come to be nearly the standard the world over; and to change to a ten-frame Langstroth, two inches deeper, would involve an enormous expense, and endless confusion to the bee keeper and supply-dealer alike. But then, you are buckwheaters, and that spoils the whole argument. No doubt the question is entirely and thoroughly settled so far as *your* buckwheat country is concerned. By the by, a moment ago you spoke about the Carniolan bees. If I remember correctly, Coggshall was partial to them when I was there.

N.—The Carniolan bee is my favorite by a large majority.

R.—Why?

N.—First, because they swarm. I want *no* bees that do not swarm.

R.—Why, Niver! You are running squarely against orthodoxy.

N.—Well, I am a spiritualist, you know, so I have that privilege. But, let me see. Our greatest yields have always been from bees that swarmed early, if they would only swarm early *enough*, and before the flow was over; that is, before the first of September. The colony that swarmed first had the most honey —that is, the colony and its progeny.

R.—Explain yourself a little more fully.

N.—How would *you* in your locality get the most white honey possible? Wouldn't you use Hutchinson's plan of hiving on starters, and depend on that swarm to make the boxes of honey? Can't you get more section honey that way than in any other? Is not that conceded? But at the end of the white-honey harvest, what have you got? You have a colony that is good for nothing for buckwheat, even if you had it, while *our* big money comes from buckwheat. We will say your queen lays eggs very rapidly in the fore part of the season, builds up very rapidly, and then, when the honey-flow does come, the queen allows the bees to crowd her out of the brood-nest, filling it full of honey instead of brood. At the commencement of the buckwheat flow, if you were to have it ten days later, you would have a poor played-out worked-out colony with no bees coming in to take their places. With *us* buckwheaters we want the queen that will keep as much honey *out of* the brood-nest as possible, and to keep it as full of brood as possible, so that, at the beginning of the buckwheat flow—say about the 27th of July, or from the 25th to the 30th, we shall have a big colony coming on at that time, ready for buckwheat, which lasts four weeks with us, and thus we have all the queens we are after, and the Carniolans fill the bill. And I see that I have good backing here in your own apiary. That is what your apiarist, Mr. Wardell, wants—a queen that will swarm early, and lay through the honey-flow. That is orthodox, is it not?

R.—Yes, yes, yes; I give up you are orthodox for *your* country; but I scarcely understand why our man, Mr. Wardell, should seek swarms unless it is because his training and bee-keeping experience for the last fifteen or twenty years has been confined to a locality some sixty miles south of us.

N.—Perhaps I ought to say that he wants a big lot of bees at the close of your white-honey flow here; but the point he principally laid stress on was that he wanted them to swarm *early*, for the swarm that comes out early is the one that gets the honey. But it simmers itself down to this at last: The bee-keeper who studies his own locality, and the various honey-flows he has, and gets them down fine, is the man who succeeds, no matter where he is.

R.—Sure.

N.—You ought to see Coggshall shinning up trees before there is a leaf on any of them, to say nothing about blossoms.

R.—Why, how could he tell whether a tree is going to blossom out before there is a *leaf* in sight?

N.—Oh! perhaps there may be *one* leaf on top of the tree.

R.—Are you fellows in the habit of shinning up trees early in the season?

N.—Well, we keep our eye open all the while on what is going on.

R.—Possibly that explains why one of you is able to produce 39 tons of honey with 116 days of labor.

N.—There is a good point here. It well behooves us to ascertain in advance whether there will be a yield from basswood; and if so, to put our colonies in such shape that they will be prepared for it.

R.—Is that the way Coggshall keeps track of his locality through the years?

N.—Certainly.

R. C. M., Tex.—Drones from the same queen vary somewhat in the markings, but the drones you refer to are doubtless strange drones from other hives, for drones are tolerated in almost any colony during their season.

EXTRACTED-HONEY TARE.

Robbing Bee-keepers.

BY W. A. H. GILSTRAP.

"A small leak will sink a great ship," and "many a little makes a mickle," as Poor Richard says. Excessive tare estimates is a leak that has taken many thousands of dollars from California honey-producers—not a very *small* leak either. We used to expect a loss of 2½ per cent of our honey by the dealers "estimating" the cans and cases to weigh more than they did. One season we fared even worse, my loss being 900 lbs. that year.

GLEANINGS published an article, June 1, 1896, on honey tare, which I drew on local dealers, and got a tare compromise on several transactions. A Fresno Co. dealer is not in good humor yet. The following year the bee-keepers demanded actual tare, and it is an established fact in that part of the State. It has made some headway in San Francisco also.

Since I came to Stanislaus Co., where there are no local honey-dealers, and not expecting a full car, it makes consignment necessary. A San Francisco firm who wish to handle my crop reply to my tare questions as follows: "We have generally used our judgment as to the weight of the case, always allowing 3 lbs. for each tin; and when in doubt about the weight of the cases we take the cans out of a number of them and weigh them for an average. . . All agree on 3 lbs. for the tins."

My reply is in substance as follows:

Dear Sir:—You speak of weighing some cases to get average when in doubt. If you would weigh *cans and cases* it would suit me very well. You say, "All agree on 3 lbs. for the tins. I take exceptions. No one who has weighed the ordinary round-cornered cans agrees on 3 lbs for the tins." They weigh 2½ lbs. If you find one can, such as is in general use among honey-producers, that weighs two pounds ten ounces, you may have my old hat.

Jan. 29, 1896, Hildreth Bros. & Segelken, 28 West Broadway, New York, wrote me:

We figure 5 lbs. for the two cans, which is actual; and whatever the cases weigh is added to it.

Jan. 28, 1896, S. T. Fish & Co., 189 South Water St., Chicago, wrote:

In selling extracted honey in 60 lb. cans we always allow 2½ lbs. tare for the cans . . . we ascertain the tare of the wooden cases by weighing a few of them.

Jan. 29, 1896, Williams Bros., Cleveland, O., wrote:

We allow 2½ lbs. on each can. . . . Almost all parties who ship us honey have the tare marked on the cases, which we invariably go by.

Others could be quoted to the same effect, some preferring the net weight to be marked on the cases.

Messrs. Rosenburg Bros. & Co., of San Francisco, received several cars of honey from Nathan Bros., of Hanford, which the producers had marked "120 lbs. net" on each case, both firms paying for it at that rate. The cans each held 60 pounds of honey.

You may be honest in considering the cans to weigh three pounds, but they don't; and to so consider them takes about 17 pounds of honey from the producer on each ton, for which he gets nothing. Who does get it free is not the interesting point to us.

I predict that actual tare will be the rule in San Francisco in the near future, and I hope you will soon drop into the procession. My friendly interest in your business will not deter me from making inquiry of other dealers. At present I am undecided who shall handle my honey this season.

I think that, to use all available means to let dealers in honey know we insist on being treated squarely, and not "estimated" out of our honey, would be a good thing. Then work competition for all it is worth. The present contention of half a pound on each can is small compared to what we stood up to in '97 (being less than one per cent); but on the San Joaquin Valley crop, which the firm in question estimates at 150 cars this season, it would be about 20,000 lbs.

Later.—In the communication above on honey tare, in which I introduced some correspondence with a San Francisco commission house, it did not seem good policy to introduce the firm by name, but it does now. The inclosed letter shows that W. G. Lowry & Co. take quite readily to actual tare when the subject is fairly presented—more so, in fact, than any other leading house on the coast that I have heard of. Rosenburg Bros. & Co. finally accepted actual tare, but objected to handling alkali-weed honey, which is one of our leading kinds. W. G. Lowry & Co. seem to handle any quality, as I have known them to sell some very dark honey to good advantage.

Mr. Gilstrap:—Yours of June 5 is received and contents noted. Should the plan of having the net weight marked on the cases come into general use it would save many arguments and a great deal of trouble; in fact, we think it the only way to get at the exact weight of the honey, having it honestly weighed into the tins, and the exact tare taken, whatever it may be thereby saving the trouble of opening and weighing cases and estimating the weight of the cans.

San Francisco, Cal., June 9. W. G. LOWRY & CO.

If this matter is presented in GLEANINGS soon it may be of considerable benefit to California honey-producers this season. I consider GLEANINGS to be the principal California bee-paper.

My object is not to get a free advertisement for a house in which I have an interest, for I have no interest in any commercial enterprise except as any other bee-keeper has. My understanding is that you wish to know who will give us a fair business-like deal.

If all producers will weigh *carefully and honestly*, and mark the net weight on the case, the tare controversy will soon be a matter of history. Each can should hold 60 lbs. net, if possible, which it nearly always is. Don't try to put in more.

Grayson, Cal.

[From two references in your article above, one might infer that you have in mind the A. I. Root Co. as being naughty enough to take out a tare of three pounds, for you say, a little further on, that you have a friendly "interest in your business." Yet I can hardly think it possible you mean our firm; for I have just consulted our Mr. Boyden, who buys our extracted honey, and he says it is our rule to figure square cans at 2½ lbs., the same as the other dealers named. If we have ever taken 3 lbs. it must have been some years ago.

You will have the thanks of the coast bee-keepers at least for this crusade against this careless or unfair way of doing business, no matter who it is or has been concerned in it; and it is evident that your first article in GLEANINGS had the effect of stirring the matter up. Keep the ball a rolling.—ED.]

THE BEST HIVE FOR EXTRACTING.

The Convenience of those "Draper Barns." Why they are Better for Extracting Purposes.

BY A. N. DRAPER.

On page 496 I find an article from my friend "Joe Sweetness" (as he is known by his intimate friends in Illinois), at which I am considerably surprised. As I stated in a former article, I discarded some four or five hundred of the eight-frame Simplicity for the large Dadant hive, after using them side by side for several years. Do you suppose for a moment I would discard $400 or $500 worth of fixtures did I not meet with some serious difficulty? I had somewhere from 3500 to 4000 Simplicity frames filled with comb all built on wired foundation, and they were nice while new. I had the same idea in my head, of having all the combs the same size in the brood and surplus apartments, for the sake of convenience; and I allowed her royal majesty to occupy one, two, or three chambers with brood as she saw fit. The first year all went nicely enough, as I wanted bees and increase; but when I came to extract honey, my trials, troubles, and tribulations began.

In the first place I had to go over the entire apiary and sort out the combs that I wished to extract, and get them into the super or upper stories; for if I left any brood up there the bee-escape would be useless, as the bees would not leave the brood. After getting the honey into the house I usually do the uncapping while a helper does the extracting. I have a Stanley automatic that I have had some fourteen or fifteen years. We usually select combs as nearly the same weight as possible to place opposite each other. Some of the very heaviest combs would prove to be heavy with pollen, causing the extractor to run badly. Now, with combs that have been used for breeding purposes it is absolutely necessary to get them back on to the hives as soon as possible after they are extracted, as it is impossible to keep the moth-worms off them in any other way. More or less of them are immediately appropriated by the queen for breeding purposes, and you have your brood scattered from the top to the bottom of your hive during the summer. The honey-yielding plants fail to secrete much nectar during the hot weather, so that the whole force of the colony is turned to bringing in pollen; and as the brood is scattered through the hive, so is the empty room for pollen; and it is not long till every available cell is filled with it. Sooner or later this condition is sure to occur, if managed in this way, and your combs are absolutely worthless. Even if you cut the combs out and try to extract the wax, the pollen is a nuisance, as you can not get all the wax out. If it should be a dry fall, and the fall crop of honey should be light, another sorting is necessary to get honey enough together for the bees to winter on. Then you are liable to get combs that are over half filled with bee-bread covered with a small amount of honey, and capped over. After consuming the honey the bees will starve with fifteen or twenty pounds of worthless pollen left in their combs.

Time goes on and the years slip by. More and more pollen accumulates, and combs get thick and black. Does our friend Hambaugh or the worthy editor of GLEANINGS pretend to say that they can ever get a first grade of honey from such combs? I have tried putting these pollen-laden combs in water, and soaking them and then using the extractor, and a nice muss it is, and it does not improve the combs very much. I have put these combs in the center of the brood-nest, and there they stayed, as the bees would not clean out old dry pollen. Let me state it right here as an established fact, and as emphatically as possible, that under no circumstances do we want the queen in the supers, whether running for extracted honey or sections.

Since getting the large hives I have never extracted a large comb from the brood-nest. The frames are so large that they will not go into the extractor. It is a very rare thing for a queen to leave a large brood-nest and go up into surplus cases. If I could not keep her out any other way I would use excluders. As the honey is never extracted from any of the combs in the brood-chamber, it is a very rare thing to have an excess of pollen, and then it is when a queen gets old and worthless, or the colony is queenless. One Simplicity ten-frame body is too small a brood-chamber for extracted honey. On the other hand, two ten-frame bodies are too large for a brood-chamber, and are more expensive than one large one. In case it is desirable to move an apiary in the summer to get an extra flow of honey, we want to move extra strong colonies. The barn is much easier to move than two ten-frame Simplicities. With the Danzy bottom-board and roof, and the Hoffman frame, the Draper barn is without an equal for moving strong colonies during hot weather, for securing extra flows of honey. All it needs to complete it is an arrangement for fastening the roof and floor secure, and Mr. Hambaugh's ventilator. An empty super would make an excellent one by cutting the hand-holes clear through, and on both sides and ends, and instead of being in the center close to the lower edge, and they should be somewhat larger than the ordinary hand-holes, with wire cloth nailed over the aperture on the inside of the ventilator, as I would now call it. As soon as the colony is loaded on a wagon, and is jolted, as it would be in hauling, the bees cluster up in the roof, and this ventilator allows a current of air to pass under the cluster up in the roof, and keeps them cool, besides furnishing them all the air they need.

Were I starting again I would use the shallow Dadant super with the Hoffman frame. If it is full of honey it is enough for any one to carry into the honey-house. It is enough space to add early in the spring. The queen will not leave the large brood-nest to go up there to lay unless there is drone comb there and none below. There is no sorting of combs ever necessary. I have never known of a case where the bees would not have honey enough below to winter on. I have not the least doubt but that the Dadants have surplus combs that are from 25 to 30 years old that are good yet, and have never had brood or pollen in them. I should like to hear from them in regard to their surplus combs, and how they take care of them when not in use.

Upper Alton, Ill., July 25.

[As the evidence begins to pile in, pro and con, on this subject, it seems light is surely breaking. From all that has been said, if I can interpret correctly from the reports, it would appear that for northern localities the eight frame capacity is about the right size when running for comb honey ; and it does not matter whether that is in the shape of an eight-frame Langstroth or Danzenbaker ten-frame or two Heddon eight-frame brood-chambers, all three being of about the same capacity. For other localities, and particularly in the South, a larger hive seems to be better for the production of extracted honey. Some think a ten-frame Langstroth is quite large enough. Others, like our friend Draper and the Dadants, believe that a ten-frame Quinby, or what has recently been introduced as the Draper barn, is the thing.

It was O. O. Poppleton, one of the most careful and conservative bee-keepers there is in our whole land — one who has produced honey in Illinois and Florida both by the ton and by the carload — who says that a comb-honey hive can not also be a good extracting one, or something to that effect ; that the one designed for liquid honey should have a large capacity, and that for comb smaller, so that this question of large and small hives after all simmers itself down to a matter of locality and condition of market. If there is more money in producing extracted honey, then it is folly to produce comb ; and one should study well his locality, and then decide on the style of hive.

It is P. H. Elwood who began with the Hetherington-Quinby, ten of which frames would make a very large hive, and now I believe he uses only five or six such frames in the production of comb honey. These would give an equivalent capacity, if I am not mistaken, of an ordinary eight-frame Langstroth. On the other hand, the Dadants started with a Quinby, pure and simple, and they have been producing extracted honey, and have continued along with the original Quinby, nine and ten frames.

It has been only within the last month or so that all of this mass of conflicting testimony seems to have centered itself down to a point so that we can know, to adopt a slang phrase, "just where we are at ;" and it is no little pleasure to me to believe that all of this discussion has at least led to something practical.—Ed.]

* * *

FEEDING BACK TO FINISH UP UNFINISHED SECTIONS.

A Seasonable Article ; Artificial Heat.

BY F. GREINER.

It is, I believe, a fact conceded by all, that bees will do better work in warm weather than in cool. Quite often we have it rather cool during the early part of the clover-honey season, and again during the buckwheat-honey flow. Work sometimes comes almost to a standstill on account of a cold night. Fortunately, during our basswood-honey season it is nearly always warm, including the nights. Then we have ideal bee weather — ideal weather for honey secretion, and work in the hive. When feeding back to have section honey finished up, the work will be done a great deal better when it is sultry, and a section finished up during such a time presents a much better appearance than another one finished during cold weather. By packing the supers we may retain much heat generated by the bees, and make a gain sometimes. Danzenbaker attaches much importance to this point, which, I believe, has a good deal to do with his having his sections so well filled and finished.

The time when I feed back comes always after the buckwheat ceases to yield, or about September 1 ; and at this time it is more often cool than warm, particularly nights. It used to annoy me to have so many such sections look so rough and uneven. To use a comparison, they looked like a field roughly plowed, while I wanted them to look like one all harrowed down nicely with a smoothing-harrow. I studied and experimented along this line with hot soapstones, blankets, tenement hives, and kerosene-lamps. Any one *not* having a fall honey-flow will not have the trouble I have, for he can (yes, ought to) get this work done when it is still warm. He ought to have it done just as soon as his bees cease working, not alone because it *is* then still warm, but because the bees are in better shape to do the work then than after they have been idle for a time. I always select such colonies for the work as were working well at the end of the harvest. If such a colony is not already in a contracted hive I reduce the size of the brood-chamber previous to feeding, or much honey will go into the brood-nest. It is a well-known fact that bees are more apt to store in the brood-chamber late in the season than they are during the fore part. I prefer half story hives, or such colonies as are in other shallow-frame hives.

Of all the means tried, I like the kerosene best, as it is the handiest and most effective in assisting the bees in keeping up the temperature necessary for doing nice work in the sections. For experiment I have built a little bee-house, double-walled, and packed, and roomy enough to take in six colonies. By means of a kerosene-lamp I can raise the temperature inside to 90 degrees, and keep it there any length of time. To regulate the lamp I have to open but a small glass door just above the floor. A thermometer inside tells what the temperature is, and it may be seen from the outside through the same glass door mentioned. During daytime the temperature keeps high enough, many a time, without the lamp.

Each colony may be given two or three supers of unfinished sections at one time, and a Miller feeder placed on top. This, of course, must be kept filled with diluted honey, which, being kept warm by the heating apparatus, is thus always in good condition to be taken by the bees. Sometimes I feed at the entrance also—not by an entrance feeder, but by piling up at the entrance sections not containing honey enough to justify me in returning to the hive for finishing. All sealed patches must be unsealed, or scratched with an uncapping-comb—an instrument that might well be offered for sale. When the weather is warm enough all honey will generally be removed from the sections during the night. In cold nights it does not work so well, and the bee-keeper must not fail to remove the sections from the entrance early in the morning, or trouble and robbing may be the result.

In closing I wish to say that all my section honey now gained by feeding back looks as fine as any, and represents "the field gone over with the smoothing-harrow," in my illustration.

Naples, N. Y., Aug. 4.

* * *

RAMBLE 172.

Rambler and a Wisconsin Honey-producer on a Crow-hunt. Something about Crows in General.

BY RAMBLER.

Soon after my return to the southland, and to the beautiful city of the angels, the lady who had charge of several bachelor lodgers came to my room one evening and reported that there was a gentleman downstairs who desired to see me.

"Is he good-looking?" said I.

"Why, yes," said she; "and if *you* will pass in a crowd, *he* will."

"Show him right up, Miss May; show him up."

I took my position at the head of the stairs to greet the stranger, and the first impression about the man that struck me was the size of his skylight. His head was bald for a considerable area, and, as sure as you live, I thought the head belonged to a minister I had known in San Bernardino Co., and I wondered what I had done to lead parson Brainard to get after me; but as the stranger loomed up more and more I was greatly relieved to find that it was not the parson, after all. I passed him into my room, observing that he was a tall, well-built man, having the air of a person who had traveled more or less with a kodak.

Said he, "I believe this is the Rambler."

"That is just where you are right," said I.

Then he introduced himself as Frank McNay, of Wisconsin, the owner of many apiaries, and an extensive dealer in honey. We talked about bees and honey, east, west, north, south, and diagonally. Mr. McNay is a well-posted bee-man, and is something of a rambler himself, having spent a winter in Florida, and now with his wife he had come to spend the winter in Southern California, with every evidence in their minds that it is a better place than Florida. Mr. and Mrs. McNay were provided with Rambler bicycles, and suggested that it would be appropriate for the Rambler to have such a wheel; but as a Cleveland had won the day with me I was content to be perfectly satisfied with it.

Uncapping Can.

The Crows Nest.

I found time to take several wheelrides with these friends, and, after visiting my apiary and several others, it occurred to me that Mr. McNay would like a longer trip than we had been taking, and I invited him to take a wheelride to the Little Tehunga Canyon, 25 miles distant, for a two-days' crow-hunt.

The plan struck Mr. McNay very favorably; but Mrs. McNay declined to go. Although she did not so express herself, I surmised that she finished her hunting when she captured McNay. But, pshaw! what am I saying? it was the other way — McNay captured her — that's it. Well, however the capturing may be, she had no ambition for a crow-hunt, and at the proper time Mr. McNay and I started out on our wheels, amply armed and provisioned for the purpose.

A fair day, fair roads, and pleasant companionship, were the happy factors in the case; and, though I was not so expert with the wheel as my companion, we were making very good time until we ran into a sandy road, and it just wilted us off our wheels. Mr. McNay immediately looked at his cyclometer, and then, rising to his full height (he is a six-footer if not more), he boasted how he had ridden 17 miles without dismounting, and how he had done better than that in Wisconsin. Now, I could have done as well as he; but having his welfare in mind, and feeling somewhat responsible for his safe return to his wife, I had alighted several times to stone those unpleasant dogs that nip at our wheels. Then we passed through a little town that was not properly labeled, and I halted to inquire the reason why. They had removed the label down to the railroad station; and as the Southern Pacific owns nearly the whole State, there was no use of having a name. After my companion had quieted down on his 17-mile ride we proceeded, riding and walking as the road permitted.

"It is such a pleasant day," said Mr. McNay, "I should think the crows would make their appearance. We should have seen dozens of them in Wisconsin by this time."

"Well," said I, "just be patient; I am running this crow-hunt, and this is California and not Wisconsin.

For about twenty miles our journey was up the east side of the San Fernando Valley. We now faced toward the mountains, and entered the Little Tehunga Canyon. Mr. McNay was still on the alert for crows, and was a little ahead of me, and at a sharp turn in the road he dropped off his wheel and shouted, "Here's the crows, Mr. Rambler; get out your kodak!" When I espied his crows I had to smile. It was an old darkey woman with several curly-headed picininnies.

"Why, Mr. McNay, those are not California crows."

"Well, that's the kind we have in Wisconsin, any way," said Mr. McNay, "and there is quite a sprinkling of them in Florida too."

We kept proceeding. It was getting toward one o'clock. Our stomachs had ground out what little provender we had inserted in the morning, and began to be rancorous for more. As it was now up grade all the way, we were inclined to rest often, and inclined to break into our lunch-boxes; but while we were sitting on a rock considering these inclinations, a Spaniard on a load of wood appeared. "Now," said I, "just hear me talk Spanish."

"Hello, senor! Ze zollyfired ger busty loosy no bagamagano."

The Spaniard shouted back, "Bally no garry zolly fried grubstake barranca."

"What in time did you and he say?" asked Mr. McNay.

"Oh! I merely asked him if there were any crows' nests near, and he said there was one just above the barranca."

"And what is a barranca? never heard of such a thing in Wisconsin, any way," said Mr. McNay.

"Deuced if I know myself," said I; "I think it must be a gate or a well."

We pushed our wheels ahead of us, and dragged our feet behind us, and came to one of those rugged places in a canyon where the rocky walls rise on every side, and the way seems blocked for further progress; but a sudden turn lets us through, and we come into quite an opening. I swung my hat, and shouted, "Hello, McNay! look ahead of you! there is the crow's nest, and behold the Crow."

"Crow? ha! ha! why, Rambler, that is a *white* crow. I never in my life saw that kind in Wisconsin."

A WISCONSIN CROWS' NEST.

"Well, that is the kind we have here. It's our way, Mr. McNay, to have every thing best in California."

We had at last found the Crow's nest, and the occupant was Jas. M. Crow, a California bee-keeper of good repute.

We refreshed ourselves immediately from our lunch-boxes and from the ample larder of the Crow's nest, which was placed at our disposal.

Mr. Crow divides his attention between his apiary, his gold-mine, and his city home. In the latter nest Mrs. Crow presides. Mr. Crow had a fine apiary of 125 colonies in San Diego Co., but he sold and moved to Los Angeles. He came into possession of the present apiary through a trade, and it is not according to his liking in hives and fixtures. It was formerly quite a large apiary; but, being in the hands of inexperienced persons, it has degenerated, and the dry seasons have diminished the numbers. Mr. Crow proposes to get the remnant into better hives, and build the apiary into a paying institution, provided, of course, there is a good rainfall next season.

The uncapping-can handed down by a former owner was so novel that it took the eye of Mr. McNay, and I present a photo of it. It was merely a rude frame with a gunny sack attached to the upper portion. A slit in the bottom of the sack allowed the attachment of a good-sized dish-pan perforated with many holes. Mr. McNay said they had no such things in Wisconsin. One of the honey-houses was a substantial affair, and built of stone. A stone honey-house is a very desirable building in this country. They are cool in summer, warm in winter, fire-proof, and not handy for burglars to break through and steal.

After the honey business had been discussed to a considerable extent we were shown the adjacent gold-mines. Mr. Crow's mine was in the course of development; but a neighboring miner had cut a tunnel several hundred feet into the mountain, and had a large amount of low-grade ore in sight. Mr. McNay was informed that the mine could be purchased for about $40,000. Now, if the mine had been worth two or three hundred thousand dollars Mr. McNay would have used a portion of the fortune he has accumulated from the honey business in Wisconsin, and purchased the mine; but he did not want any cheap $40,000 mine on his hands.

After our arduous day's work, tired Nature asserted her rights, and we prepared to go to roost, and Mr. Crow insisted upon giving up his nest to us. Mr. Crow is not a tall man, and his nest was made according to his needs. I could manage the nest very well; but tall Mr. McNay had to make rafters of his legs or poke his knees out in front or into my ribs, or project his feet out at the foot of the nest. He managed very well until he dropped asleep, then his feet would start right off toward Wisconsin, and hang out like twin specters in the dim moonlight. Having in mind the old adage about keeping the head cool and the feet warm, I was extremely anxious for his welfare, and anxious to have him return in safety to Los Angeles and Mrs. McNay.

To allow a man to expose his bare feet all night, even in California, is no trifling matter, and the case was more aggravating when we consider that Mr. McNay was a tenderfoot. My only remedy was to give my nest-fellow a shake, and shout, "McNay, pull in your feet!" He would promptly obey every time, and keep right along snoring.

Mr. Crow had curled himself up in a cot on the other side of the cabin, and he soon began a snoring duet with Mr. McNay. Between the nasal music and the care of my companion's feet I slept hardly a wink during the night. In the morning Mr. Crow remarked about my haggard appearance; but I knew that, if I told them the cause of my sleeplessness, they would both contradict me right from the shoulder, and I suffered in silence.

The next afternoon we returned to the city, making good time, and having a trip the pleasures of which we will long remember. Mr. Crow's door is open to all good bee-keepers who wander this way.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE

PROPER TEMPERATURE FOR BROOD-REARING.

Question.—Can it be possible that 100° of heat is required for brood-rearing? If I remember rightly I read a few days ago that 100° is about the temperature the bees maintain inside the hive when rearing brood; and if the heat in the sun is greater than that, the bees, by fanning at the entrance, cause a current of air to pass through the hive so as not to allow the temperature of the hive to rise higher than this. It seems to me 100 is altogether too high, and that 80 to 85 is much nearer right.

Answer.—I think I saw something similar to what the questioner alludes to, in one of the bee-papers; and this, together with what he says, leads me to believe that but few have a correct idea regarding the degree of warmth in which the bees keep the eggs, larvæ, pupæ, etc., during the time they are rearing their young. While nature has so ordained that a good colony of bees can form a living hive, as it were, in which to rear their brood, yet brood-rearing is very largely dependent on the hive; and before I take into consideration the real subject touched upon by the questioner I wish to say a few words regarding that part which the hive plays in this matter of brood-rearing.

In spring weather the capacity of a hive to retain warmth, the same coming in close contact with the bees, has much to do with prolific brood-rearing and the securing of our bees in time for the harvest. The more heat we can retain in the hive, the more honey we can save; for all are aware that the "fuel" which the bees "burn," so as to raise the temperature of the cluster to where they desire it, is honey. Again, the more fuel (honey) the bees burn, the sooner their life wears away; for it takes an effort, even on the part of the bee, to keep the furnace (the bee) heated, and filled with fuel as fast as it is consumed. Hence we see the important bearing that a good warm hive has in advancing our interests in the spring. Why do I say *in the spring?* Because at that season of the year the temperature outside the hive is very much lower than that which is required by the bees to rear brood, especially during the nights. If, as I saw in print not long ago, bees could rear brood with a temperature of only 60°, then there would not be so much need of a good warm hive, for we have many spring days wherein the mercury goes as high as and even higher than that. If those figures were correct, then our bees could rear brood in April and May, here in the North, to as good advantage as they do now in July and August. Then if the temperature of brood-rearing were only 80 to 85°, as our questioner seems to think, should the temperature run higher than this would it not be unbearable by the brood? And if this were true, what would the bees do when the mercury stood about the "nineties" for days in succession, as we frequently have it, even in this locality. Would it be possible for the bees, by fanning the air, to give a less degree of heat than that very air contained?

Some years ago, having a desire to know for a certainty of these things for myself, I began to experiment as follows: I procured a self-registering thermometer, and, placing it near the fire till it showed 125 to 130° of heat, I set the register wrapped it in some heated cloths, and immediately placed it in the center of the brood-nest of a medium-sized colony. This was on a very cool day, some time in the month of May—about the middle, as nearly as I can remember. That night water was frozen so as to form ice nearly as thick as window-glass, the time being selected on purpose. The next day, about two o'clock, it had warmed up enough so that the bees were flying freely, when I took out the thermometer and found that the coldest point reached in the brood-nest during such a cold night was 92°. Since then I have tried the same experiment on both strong and weak colonies, although at no time since did it freeze so hard as at the first trial; yet in no colony that was rearing brood successfully did I ever obtain a less degree than the one mentioned, while some of the stronger colonies gave a temperature of 95° on very cool nights — nights in which there was some frost.

Being satisfied that 92° is the lowest point consistent with successful brood-rearing, I next went about finding what is the highest point the bees allow in their hive when the mercury is playing in the "nineties" in the shade. Accordingly, one very warm August morning I placed the thermometer in the center of a very strong colony. This day gave promise of being a very warm one, it being 78° in the shade before the sun was two hours high. At two o'clock that afternoon it was too warm to work out in the sun without danger to health, as from 90 to 95° was the range of temperature between 12 and 3 P.M., while the front of nearly every hive in the yard was covered with bees, with hundreds plying their wings at the entrance to keep the temperature as low as possible inside the hive. At about sunset the thermometer was lifted from the hive, when I found that the highest point reached was 98° during that extremely warm afternoon. Since then I have tried similar experiments, but have never been able to secure quite as high a temperature, although on one other occasion it came within less than half a degree of 98. In this way I found that, to rear brood successfully, the temperature of the hive must reach a point somewhere between 92 and 98°; and any arrangement of hives that would keep it as near those points as possible, with the least expenditure of effort by the bees, would be the hive best suited to the wants of the apiarist. To this end I am very favorable to a chaff-packed hive, the same being painted a dark color, and covered with a metal roof, the same being painted a dark color also. The hive is allowed to stand in the sun thus till warm weather arrives and the bees become numerous, in order that the chaff and hive may absorb the heat from the rays of the sun during the day, and slowly give it off at night, thus helping the bees immensely in keeping up the desired temperature during the night. When it becomes steady warm weather, with the bees numerous, with prospect of hot weather, then a shade-board is provided, the same being raised from an inch at the front side of the hive to four inches at the back, so that the air can circulate all over and about the shaded hive during the day, while from the chaff, taking in much coolness during the night, which it gives off during the day, a uniform temperature is maintained, so that the bees are seldom driven from the sections, either by the cold of night or the heat of the day.

These points are well worth looking after if we would meet with the best success.

BEGINNERS' QUESTION BOX

BY E. R. ROOT.

W. H. W., Mo.—If you make sugar syrup as we describe in our catalog, one-half sugar and one-half water by measure, and feed the bees before the frosty weather comes in, you will not need to trouble about the sugar granulating in the combs; but if, on the other hand, you make the syrup one-third water and two-thirds sugar, and feed it during the cold weather, you may find some granulation.

E. L. B., Ohio.—The bees will probably take care of the dead brood in the combs that died as a result of overheating while moving the bees. If they do not, better take the combs out and melt them up. Such dead brood is not likely to turn into foul brood, even though it appears to be a favorable medium for the growth of the germs of that disease if they are already present in the hive.

W. C. G., N. M.—There is a good deal of powdered and pulverized sugar on the market that contains quite a large percentage of common starch. This starch is not an adulterant, for the simple reason that some people prefer to have the starch because it makes a better frosting for cakes, and this sugar, you know, is used largely for this purpose. You probably have been using a sugar that has starch in it. By sending to a wholesale grocer or to your own grocer you can obtain a pulverized sugar that is sugar and nothing else. This will make you a bee-candy that will give you good results every time.

EDITORIAL
BY E. R. ROOT

BUCKWHEAT, the one almost never-failing source of honey in certain sections of New York, is not as promising as it might be. In fact, one or two have reported entire failures; and one bee-keeper in the heart of the buckwheat country, Mr. N. E. Boomhower, reports it as "the poorest honey season ever seen in this country."

THE HONEY CROP OVER THE COUNTRY, AGAIN.

SINCE our last, reports give a little better showing. Indeed, it begins to appear as if there were some bee-keepers, and even some States, where a fair crop of honey has been secured. Missouri, generally speaking, has had a good yield. Wisconsin will have more honey than was at first expected. Northern California has produced quite a showing of honey. Certain portions of Colorado show a good yield; and many places in the South have had fairly good flows of honey. But taking every thing into consideration, Northern honey, both comb and extracted, will be a rather scarce article.

TABLES TURNED.

HONEY-BUYERS are out on the road, buying up honey, trying to find it, and they are getting it. One whole section of Wisconsin has had all its honey cleaned up. A New York concern got in there before we had a chance to do any thing; and now some of them are rushing toward Missouri. It would seem that this year the buyers have to hunt up the honey. The tables are turned at last. The old rule has been, consumers seeking the buyer. Nevertheless, it would be wise for those who have good honey to avail themselves of a free advertisement in GLEANINGS, one insertion, five lines. The more you can get after you the better will be your chances for good prices.

"BEAR" UP THE MARKET.

IN the Honey Column in this issue we note that some of the markets are practically bare of new comb honey, while others are receiving consignments. In the first case mentioned, the prices offered are evidently too low, and the honey is, therefore, going to those points where higher prices are offered. Northern honey, of fine quality, both comb and extracted, is a rather scarce article this year. This, taken in consideration with the fact that prices are advancing this year on every thing else, ought to raise the price of honey above what has been offered for it of late. It is true, we are honey-buyers; but that makes no difference. If prices advance, the ratio will be the same, for we can sell for more money. But we should like to see comb honey, for the sake of producers, come up to the old-time figures, if possible, this year. If dishonest commission houses and slipshod, behind-the-times bee-keepers, could be entirely figured out of the problem, there is no doubt that the reliable firms could "bear" up the market, and perhaps they can do it, even as it is.

SELLING HONEY FOR CASH OR ON COMMISSION; HOW TO AVOID BEING "TAKEN IN" BY HONEY-SHARKS.

NEARLY every year, or during the latter part of it at least, there are usually quite a number of bee-keepers who complain that they have been unfairly treated by commission houses or honey-buyers. In some cases, at least, the trouble is wholly with the bee-keeper. His honey is improperly put up, breaks down in transit, and in the end the commission man is blamed. There are a few expert bee-keepers who know exactly how to put up their honey, and how to put it on the market without running risks. But there are many more, in spite of all that has been said, who make serious mistakes, greatly to their financial detriment.

In the first place, let me say that there is a vast difference in the *legal responsibility* of an actual *buyer* and a *commission house*. If you ship your honey to an irresponsible purchaser, and he fails to make you returns, you are helpless. If he is worth any thing, on the other hand, you can sue him for the full amount of your claim. A commission house, on the other hand, if it takes your honey, takes it in trust. You will be obliged to pay freight, cartage, and assume all risk in shipment. If the honey is broken down in transit, the commission man (if one of the sharpers or skinflint class) may make out its condition a great deal worse than it is, sell it at a certain figure, and represent to you that it sold at a good deal lower figure. He will not only steal the difference between his actual selling price and the price represented to you, but will charge you up, which he has a right to do, with freight, drayage, and his 10-per-cent commission. Although you may be pretty well *satisfied* that he has actually robbed you, unless you can *prove* it you have no recourse in law.

The nicest way to dispose of honey is to sell it for cash to a responsible, honorable firm. In 30 days' time you will get returns for the full amount of your bill. But if the buyer is irresponsible, and especially if he is dishonest, look out. I would rather deal with an irresponsible commisssion house than with an irresponsible buyer. The former will be compelled to render you *some* sort of returns, while the latter can simply say in effect, "What are you going to do about it?" If you sue him you will be running up attorney fees, without any show of returns; but the commission man *must* render you some sort of statement, and remit according to that statement, or go to jail for having taken your property in trust. He has no right to confiscate it; but, as I stated, he may make a false report, and render you only a small percentage of the actual amount he received for the honey.

In the first place, then, investigate the responsibility of either a commission house or of a buyer, as the case may be. If your banker can not give you the desired information, write to us—better do so any way, because we are acquainted with many of the really reliable firms who handle any considerable amount of honey, and will charge you nothing for the information.

But suppose you get a good offer, and do not really know the firm; your banker does not, neither do we. Or suppose you haven't time to write, and that, to all appearances, the firm is straight, and you desire to close the deal. Ship the honey to your own name to the point of destination, and attach a draft* to the bill of lading, sending both to some bank at the place where the honey is shipped. This bank will, for a very small fee, collect the money, turn over the bill of lading and the honey to the actual purchaser.

But suppose there is no bank in your vicinity, and yet you wish to make yourself safe. Consign your honey as before to your own name at the point of destination, and then request your agent to express† the bill of lading to the agent at the other end of the route. The latter, as agent for the express company, will collect the money, and deliver the honey and the bill of lading. Money will be forwarded to your agent, when, by paying a small fee, you can take the whole amount of the cash.

Again: Look out for any firm that makes quotations away above the general market figures. These high prices are put out as baits. You ship to the house, and as soon as the honey is in its hands it will report that the "market has suddenly declined," or that your "honey is of poor quality," or that it was "broken in transit," and after a little the house will advise you that the honey was sold for, say, a half what you expected to get for it—may be a good deal less. The concern will be obliged to remit to you according to that report, after deducting freight, drayage, and commission. If you expect to get 15 cents for your honey you will probably get in cash somewhere about 4 or 5. This thing has been done over and over again—so much so that I feel it is necessary to warn our readers thoroughly.

Still again, it is a bad plan to ship to a commission house, even though it is quoted at thousands of dollars, and its honor is above the average, if such house does not make a *specialty* of handling honey. It can not begin to do as well for you as some firm that makes honey a business.

HOME-MADE SHIPPING-CASES.

I have several times spoken of the folly of trying to put otherwise nice comb honey into poorly constructed or home-made shipping-cases, and I hesitate about saying very much about it now, because it looks as if we had an ax to grind. But I know just how our honey-buyers and commission men regard these poor miserable clap-trap affairs made at the "ordinary planing-mills around home." A member of a honey firm in Chicago pointed to me a nice lot of honey put up in home-made cases. Said he, "If it had been put up in no-drip shipping cases of the modern style, the honey would have brought two cents more per pound." The cases he pointed to me held 24 sections each. This would have made a difference of nearly 50 cents per case, and yet I venture to say the penny-wise-and pound-foolish bee-keeper thought that, because he was saving one or two cents on the factory-made cases, he was just so much ahead

Various commission houses in Albany and New York city, Philadelphia, and Columbus, emphasized the importance of neat attractive cases, and in this day of fancy goods and close competition, it would seem as if it should be unnecessary to speak of this.

I am well aware that I have gone over or rehashed here a good deal that I have said in the past; but it seems to me very important to "rehash" some things; and it is evident that a good many honey-producers do not read bee-journals, even if they do take them.

We are planning to get this commission article out in the form of a leaflet and we expect to put one in every package of shipping-cases We will see if we can not get this very necessary information before bee-keepers in such a way that they will be able to protect themselves against a very irresponsible and dishonest class of operators in the cities Any other manufacturer who desires to copy the matter in this editorial for his own leaflet is at liberty to do so; for the more this matter is brought to the attention of the bee-keepers of the land, the more money it will mean to them in the long run.

A PLEA FOR THE COMMISSION MAN.

In the foregoing I may have given the impression that nearly all commission houses are "up to the tricks of the trade;" but that, I am pleased to say, is not the fact; and those that use our Honey Column we believe to be honest. And yet I realize the fact that there may be one or two among the number whom some of our friends feel are not all they might be. Perhaps so; but in several cases we have investigated, we found the trouble was either due to a lack of experience or because the bee-keeper himself was desirous of getting the "lion's share." The dishonesty is not always on the side of the commission man. The difficulties, when they do come up, however, are mainly those that are the result of inexperience on the part of the bee-keeper, and ignorance of the ordinary methods of doing business—yes, ignorance of the simple principles enunciated above.

HIGH PRICES ON CLOVER EXTRACTED HONEY.

I KNOW one case where a fine quality of clover extracted honey sold by the ton for 11 cents at wholesale; and of another instance where a fancy extracted went for 9 cents. This would seem to indicate that clover honey of A No. 1 quality is rather scarce this year, for the same sold two years ago for 5 and 6 cents. It is hardly probable that 11 cents can be gotten again for first quality of clover, as prices will probably decline a little, owing to the fall fruits that will soon be loaded on the market.

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* Your banker can do this for you.

†If you mail it, that relieves the express company of all liability.

INKY BLACK HONEY.

I HAVE before me a sample, quite a large one, of black honey—so black, indeed, that even the bright light from a clear sky will not penetrate its inky darkness. At first I thought it might be some product from aphides; but it does not have the characteristic flavor by which all such are recognized. Its flavor is not really bad, and our correspondent is of the opinion that it comes from post oak. If any one else has produced samples of genuine honey, not "bug juice," that is as black as ink, I wish he would send samples of it.

ROBBING BEE-KEEPERS.

We regret to be obliged to warn our friends against sending any honey to E. R. Hayes, of Topeka, Kan., or trusting him in any way. D. S. Jenkins, of Las Animas, Col., sent him a lot of honey last October. Hayes said, when Mr. J. offered the honey, "I will send my draft on arrival of goods." Since then friend Jenkins can not get a word from him, and we have written to Mr. Hayes twice, the last time telling him we would publish him unless he made some sort of answer; and although we have given him several weeks' time to make a reply, we can not get a word from him in any way, shape, or manner. Will the other journals please pass his name along unless he can be made to talk or give some reason why he does *not* talk.

A SOURED BEE-KEEPER.

SOME bee-keepers are, unfortunately, sour (when they ought to be sweet)—soured on particular people who, for some slight cause, have gained the ill will of that person. This thought came to me after reading a communication in one of our bee-journals. The writer of said article—a chronic pessimist—seems to be leaving no stone unturned to say some mean thing of some one person whom he does not love, evidently. I feel sorry for such folks not the ones picked at, but those who do the picking. What miserable lives they must lead! The most unhappy person in the world is the one who is continually finding fault with others; and the happiest person in the world is the one who loves all the world—even those who have faults.

"A GOOD CATCH," AGAIN.

ALREADY several photographs showing a young woman in the act of catching a swarm of bees have been received. One defect with some of them is what an amateur photographer would call a "lack of contrast." For instance, in several pictures the swarm of bees hanging in the air has a background of foliage, which in the pictures is of the same color, almost entirely obscuring the outline of the cluster of bees. Such pictures, if reproduced in half-tone, would show the swarm quite indistinctly. I have at least one photo that I can use. In the mean time our artist, R. V. Murray, has entered into competition with brush and pen. He has in his mind's eye a beautiful young woman holding forth a swarm of bees. Just over the fence, and leaning on it, is a young farmer of marriageable age admiring one part of the scene before him — which part I need not say. If Mr. Murray catches the inspiration, there will be a rare combination of ease and grace, with a touch of romance.

The successful contestants will have their productions shown in half-tone, both in GLEANINGS and in the A B C of Bee Culture.

FANCY HONEY AT THE PHILADELPHIA CONVENTION.

MR. F. DANZENBAKER, of Washington, D. C., in a letter recently received, suggests the wisdom on the part of the members of the convention of bringing in samples of honey for exhibition, the same to be displayed at the place of meeting, and examined by a committee appointed by the convention, and that said committee be empowered to award prizes, or to report "honorable mentions" for the best honey brought and shown. As a further incentive, Mr. Danzenbaker makes the following offer:

> I shall be in Philadelphia Sept. 1, and during the bee-keepers' convention, to receive and care for honey free of charge that may come for exhibition. I will pay 50 cents each for the best 20 4x5 plain sections made in Danzy hives; 25 cents each for the second-best 20; 20 cents each for the third-best 20; 15 cents each for all other 4x5 plain sections made in Danzy hives. The honey may be brought to the convention, or sent by express prepaid to me at Philadelphia, to arrive on or before September 5.
>
> Washington, D. C. F. DANZENBAKER.

WHY CLOVER DID NOT YIELD HONEY THIS SEASON.

ONE of our subscribers, Mr. R. J. Cary, of Reading Center, Ct., suggests, in answer to my question why clover failed to yield this year, that it was owing to the very severe winter. He says he has noticed that, after a very cold winter, clover does not yield well the following summer. Well, now, here is a chance for some of our subscribers who have, perhaps, been keeping record, to give us a few data along these lines. Perhaps many can *remember* whether or not a failure of the clovers to yield honey was preceded by a cold winter.

But, you say, granted this is true, what can we do to help ourselves? Nothing; except that, if we knew, say, in March, after a very long cold winter, that clover, our only source of white honey, would probably not yield, we would not be laying in a big stock of supplies when it would be unnecessary. A very cold winter is apt to be followed by a warm spring. The warm weather and the balmy air lead the bee-keeper to feel that there is going to be a big yield of honey; and the consequence is, he sends a large order to his dealer. We know that many did so last year, and a good many this year; and both winters, in many localities, were very cold, and yet clover did not yield honey to any extent, either in 1898 or '99. But all this may be a myth. There may be nothing in it. I do not say there is. But why not compare notes?

OUR HOMES,

BY A. I. ROOT.

And ye shall dwell in the land that I gave to your fathers; and ye shall be my people, and I will be your God.

And the desolate land shall be tilled, whereas it lay desolate in the sight of all that passed by.

Then the heathen that are left round about you shall know that I the Lord build the ruined places, and plant that that was desolate: I the Lord have spoken it, and I will do it.—EZE. 36:28, 34, 36.

Many of the friends will recognize the above as extracts from a recent Sunday-school lesson. It seems to me the United States of America is getting a good deal into the situation that the Israelites were when the good prophet Ezekiel gave them his divine messages and exhortations. They had been disobedient, and had trampled God's laws under foot, and they were beset with a multitude of troubles. Just now the people of the United States are, as it seems to me, beginning to reap the consequences of trampling God's holy laws under foot. When a people begins to transgress the laws of God, it is a very short step to transgressing in a like manner the laws of the land.

For quite a few years past, the fashion of pushing certain kinds of business on Sunday as well as on week days, or, if you choose, pushing it *more* on Sunday than on any other day, has been gradually growing and increasing. At the World's Fair at Chicago the managers gave a fair and square promise to close up the grounds on Sunday if a certain amount of help was given them from Christian people. They received the money and paid it out, and deliberately transgressed God's law, the laws of the United States, and, to add insult to injury, they deliberately broke a fair and square promise in black and white. In doing this they established a great precedent —a precedent that stood out strong and clear before all the world. Even foreign nations were witnesses of the fact that great men in high places where millions of dollars were involved, did not hesitate to prevaricate and *steal*, and then evade and avoid, and make it one of the *fine arts* to get around their promises by studying up ways and means *not* to obey the law.

This thing has been going on in every part of our land. The electric railway through that wonderful gorge between Niagara Falls and Lake Ontario was first started on Sunday. They had a terrible accident, but nobody seems to have caught on to the idea that there is any retribution in it for breaking the Sabbath. Some people seem to think that Sunday is a *better* day to start big enterprises than any other. They regard it as a kind of Fourth of July. The forecaster of the Weather Bureau in Cleveland, O, has of late been telling the wheelriders when they are likely to have a pleasant Sunday for their sports. Oh how I have longed to have this forecaster make some little suggestion in regard to remembering the Sabbath, and keeping it holy! Somebody may say that he meant to suggest it would be a good day to ride to church. But if you are going to ride to church on your wheel, the church-going should be the principal point, and the wheelride a secondary consideration. It has really made me groan in spirit to see men who occupy high and important places — scientific men, and men who have great skill in mechanics—and prominent men whom one would think were really considering not only the health, but the best interests of our great people — utterly ignore churches, ministers, Sunday-schools, and Endeavor Societies, etc. Why, one would think either that they never heard of such a thing, or else that they consider it old-fashioned, and were taking it for granted that these things were gone by.

The examples that influential men have set in the way of transgressing God's laws have been copied, from the least to the greatest; and, as a natural consequence, the laws of the land are being ignored. Just now the great city of Cleveland is standing with openmouthed astonishment and wonder, and speculating why it is that neither policemen nor military authorities can enforce obedience as they did a few years ago. Several street-cars have been blown up with bombs, and the passengers maimed and killed; and although more than a thousand dollars' reward has been offered for the arrest of the perpetrators, the authorities do not get a clew. In fact, the dynamite work seems to keep right on in defiance of law. The car-tracks are obstructed, even though the authorities have notified the perpetrators that it is a *penitentiary offense* to endanger life by meddling with the railway tracks. Many of the rioters have been caught in the act, and arrested; but the judge fines them from three to five dollars, and in some cases ten dollars. I have thought that these moderate fines (that their aiders and abettors can club together and easily pay) only make these people worse. They have a fair right to presume that even the judge is on their side. Many of the policemen seem to be conniving with the rioters, and great and good men are wondering what the matter is. How does it come that these outlaws have so many sympathizers? Let me tell you what happened yesterday (Sunday) right close to where I write.

An excursion with something like a dozen passenger cars filled with men, women, and children was on the way to Chippewa Lake, five miles south of here. Somebody said there was a wreck down the road, so this train of excursionists was obliged to stop right in front of our factory. As soon as they were informed that they were obliged to stop a spell, a lot of men and boys tumbled off the cars and began making inquiries for beer. Well, there is a place close to the depot where beer *has* been sold for some time on the sly. These fellows got an inkling of the truth, and in no time they rushed for the place. They swarmed about it like a lot of bees. They tried every door, and tried to look in every window. The proprietor, probably feeling a little sore from recent tussles with the Anti-saloon League, I think, refused them admittance.

When they found they could not get any beer the whole lot of them swarmed over on to our premises and into our lumber-yard; got hold of one of our trucks used to move lumber on, and piled on to it right at the top of a steep down grade; and without looking for a brake, or providing themselves with any thing to stop the car, in their drunken frolic the carload of human beings went down the incline. It struck a sort of barricade fastened to the ends of the rails at the bottom of the incline, and then the car with its load of human freight careened over and went down into a deep cut where our east and west railway passes under the north and south road. One of their number was so badly injured he had to be carried up to the restaurant where they had been trying to get in, and I have been told he will probably die.

Now, even this did not sober them. Another gang got hold of another car and started to repeat the same reckless and dangerous performance. One of our men, however, appeared about this time and ordered them off the premises. They turned upon him and refused to move. After he had provided himself with a revolver, however, he managed to get them to let the cars alone.

Now, then, friends, what sort of civilization have we when a lot of drunken rowdies like these deliberately go on another man's premises, appropriate his tools and machinery, and refuse to leave when ordered to do so? Why, it is just the sort of work you may expect and always should expect when you get up an excursion to go off to a pleasure-resort on God's holy day.

I have many times spoken of Silver Lake, Summit Co., Ohio, where our good friend Lodge has entertained people summer after summer for the last eighteen years; and in all that time no visitor has ever been permitted to go on the grounds on Sunday. In fact, friend Lodge was offered $1000 by a single railroad company if he would open his grounds on Sunday for just one summer. By keeping out the Sunday traffic he finds it an easy matter to keep out all traffic in intoxicating drinks. A pleasure-ground near by is a temperance place, usually, during week days; but on Sundays the class of people who always choose Sunday for such an outing will bring in liquors in spite of any thing that can be done. And why shouldn't they? The man who has no respect for the Sabbath can hardly be expected to bother himself with any conscientious scruples in the matter of temperance.

There is no help, no hope, no prospect of any thing better unless we turn to the teaching of our text. We must be God's people, and he must be our God. When our fathers landed in America they kept the Sabbath sacred and holy, and at times, too, when there was need of working every day in the week if there *ever* was such a time. Not only is land in some places becoming waste because of Sabbath-breaking and intemperance, but factories are standing idle while the people are out on a strike. The Lord, and he only, can build these ruined places, and restore activity where every thing is desolate. I believe the leading papers of our cities are in favor of law and order, and they have given us some excellent exhortations along that line. They counsel Sabbath closing of saloons and at midnight; and, by the way, if I am correct, the first start in the city of Cleveland toward trampling down law was when saloon-keepers with their whisky-league lawyers proceeded to break our temperance laws as fast as they could be enacted. The police, too, seemed to get an idea — at least some of them did — that their business was to *screen* the saloon-keepers rather than to punish them; and numerous cases were reported where policemen would say to a saloon-keeper, "Why, here! there is an ordinance to the effect that you are to *close up* at midnight. What are you doing wide open?"

Then the saloon keeper would say he had not heard of it; and then both the saloon-keeper and the policeman would laugh, thinking it was a good joke on the temperance people. This thing was allowed to pass; and a month or two later, when it came to forbidding the strikers and their sympathizers from molesting the officers of the street cars and their passengers, the great city was astonished because there did not seem to be any method of enforcing law or of preserving order. If the bombs I have mentioned *had* resulted in destroying human life, I do not know but the police would have found themselves equally helpless.

It is not the large cities alone that are guilty. In fact, many of the country papers seem to be even *worse* than the city papers. A few weeks ago I visited a relative in an adjoining city. We were talking about temperance work in this town, and he was congratulating us on having a temperance county paper. The speaker and his pastor had been trying to enforce law against the saloon-keepers, and had succeeded to some extent. He made a remark something like this: "Mr. Root, you have no idea how much harder it is to secure arrest and conviction while the papers in the town are in league with the saloon." He then reached out his hand and took up the latest copy of one of the principal papers of the town. Said he, "Listen while I give you a sample of the helps (?) we get, in the way of an editorial." Then he read from the paper as follows, as nearly as I can remember:

"The Puritans landed on Plymouth Rock years ago. They have recently landed in the town of Fostoria with both feet. You may have heard of it." Now, the above is brief, and it is simply a hint; yet the more you look it over the more you will feel sure that it emanated from the evil one himself. A crusade had been going on for law and order. A little encouragement from the town paper would have helped the thing in the way of creating public influence. Perhaps few people know how the town paper can shape public opinion, even by way of suggestion. First the editor makes a brief slur on the Puritans, who laid the foundation of our great republic. In the same breath he suggests it was a long while ago. These Puritans had peculiar old-fashioned notions, he intimates. Then he suggests that there are a *few* in Fostoria, who actually think God's laws and the ordinances of the city ought to be respected and enforced. No one, unless it is some one who has been through similar experiences, knows how it chills and discourages those who undertake to start a movement for temperance and righteousness. One of our leading attorneys here in Medina said a few days ago that it actually pained and alarmed him when he realized how much it is getting to be the fashion for witnesses to be stupid and dull whenever they are called upon to testify to any thing in regard to temperance work. Why, some of them evidently seem to think it is nothing out of the way to commit perjury—to *deliberately* perjure themselves — providing the case in question is for temperance.

Since the above was dictated one of the Cleveland dailies has reached us, and it gives notice of another fearful disaster where 36 persons are known to have been killed. In another part of the paper there is an account of another disaster where 18 were killed. The first happened six miles south of Bridgeport, Ct., and the second one at Bar Harbor, Me. These disasters both occurred among Sunday excursionists. The daily does not anywhere *say* that it happened on Sunday, but the date is August 6 in both cases Now, our great dailies, at least so it seems to me, studiously avoided all reference to the fact that these two disasters occurred on Sunday. If they had so mentioned it, it would have been almost incumbent on them to suggest at least a mild note of warning in regard to these Sunday excursions that are getting to be so fashionable.* Now look here, dear readers. I am not superstitious. I am simply calling your attention to the fact I have already referred to; namely, that the men and women who deliberately and voluntarily start out on an excursion *on Sunday* are, as a rule, the world over, not *careful*, conscientious people. They are not the sort of people who ought to be trusted with any undertaking where human life is in any sort of danger. The very fact that they start off on Sunday in an average Sunday crowd indicates a sort of recklessness. They say by their actions, if not in words, "Oh! who cares if it *is* Sunday? We are going to have some fun, and we can not afford to take the time on week days." Now, people who say this, either by word or by act, are not safe people to have charge of things. Not very long ago a young lady in our vicinity wanted to go down to Chippewa Lake on Sunday. As there was no one ready or willing to go with her, she insisted on going alone and unattended. At the lake she met a crowd of reckless people like herself. Before night she was brought home a corpse, drowned in the lake. The young man who was with her in the boat saved *himself* but let *her* go. Do you not see, dear friends, the indications of this same reckless, defiant spirit running through all who join in with these gatherings? Do you want to be with such a crowd? If they do not always carry intoxicating liquors with them on Sunday outings, they will sooner or later. When you are tempted to call me superstitious because I say there are more likely to be accidents on Sunday than on any other day, please recognize that it is only a plain common-sense rule of *cause* and *effect*. I feel sure that each and every reader of these words can recall instances of more than one disaster that, as people often express it, "just *happened*" on Sunday.

By careful inquiry in regard to the cause of these two accidents, we find the one near Bridgeport, Ct., was where an overloaded trolley-car ran over a new bridge that was just completed, or perhaps not quite completed. A young lady who witnessed the accident says the car was going at a high rate of speed. The car contained 43 persons, 36 of whom met instant death—just what you might expect of Sunday work. In the other case, at Bar Harbor, Me., some 200 people crowded all at once on to the gang-plank in their hurry to get on the steamer. During week days there probaby would have been officers stationed at each end of the plank to prevent an unreasonable number of people from crowding on to it. Don't you think, my friends, you had better keep out of the crowd that goes picnicking on Sunday?

PROFANITY.

The following card was circulated at a meeting of the National Anti-saloon League held in Cleveland, O.; and, by the way, I think it is quite fitting that temperance people should have cards to circulate, as well as the saloon folks. Some of the latter I should not dare to copy on these pages, for our journal would be justly excluded from the mails. Here is the temperance card:

TEN GOOD REASONS WHY EVERY RESPECTABLE THINKING MAN SHOULD SWEAR JUST AS OFTEN AND AS HARD AS HE CAN.

1.—Because it is such an elegant way of expressing one's thoughts.

2.—Because it is such a conclusive proof of taste and good breeding.

3.—Because it is such a sure way of making one's self agreeable to his friends.

4.—Because it is a positive evidence of acquaintance with good literature.

5.—Because it furnishes such a good example and training for boys.

6.—Because it is just what a man's mother enjoys having her son do.

7.—Because it would look so nice in print.

8.—Because it is such a good way of increasing one's self-respect.

9.—Because it is such a help to manhood and virtue in many ways.

10.—Because it is such an infallible way of improving one's chances in the hereafter.

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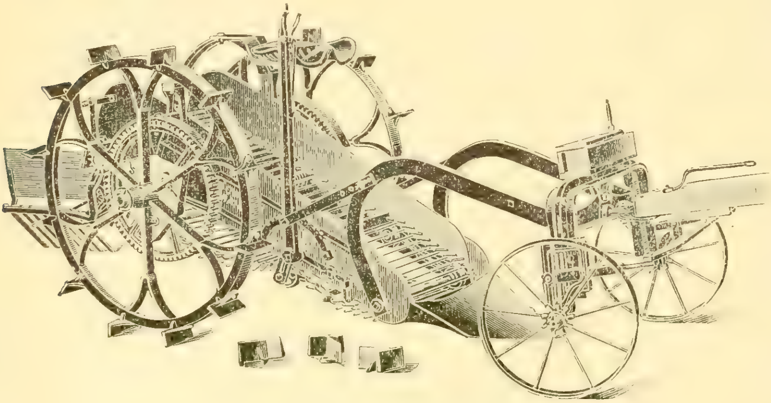
*Let me call your attention again to the way the railroad companies advertise Sunday trips. Of late they have been avoiding the word *Sunday*. They simply say, "Only $3.00 from Cleveland to Niagara Falls and return." Then they go on and tell all about the liberal and excellent accommodations for the trip. The posters will tell you it will start out, say, on the evening of Aug. 5; but when you go to your calendar and look it up you see Aug. 5 is Saturday, and so the whole program is arranged to occupy the entire Sabbath day. If they should talk right out plainly, and tell you what great doings there are going to be *on Sunday, Aug. 6*, it would jar on a good many people's sensibilities; so they are very careful to give simply the day of the month, and not talk right out *in print* about Sabbath desecration.

HIGH PRESSURE GARDENING

BY A. I. ROOT.

POTATO-DIGGERS.

Last fall I had considerable to say about potato-diggers; and I told you that, notwithstanding we had one of the highest-priced diggers made, yet on account of the wet weather we were obliged to put it away and use our old shovel-plow digger. I had quite a little correspondence with the manufacturers, and told them our troubles; and I finally suggested that, if I could see an expert working with a digger, even though the season *was* remarkably wet, perhaps we might get along a little better. To my surprise I found they had a testimonial from a neighbor living only about four miles away. I saw him after potato-digging was over, and he said they had dug all their own, and dug potatoes for their neighbors when it was so wet that no other digger could do any thing at all, and he proposed to come up here and show me how to use our own when this season was opened. Perhaps I should remark that his farm is mostly low muck ground, while we have a very sticky, tenacious clay when it is very wet. Well, this season, when our early potatoes were ready to dig, I thought I would try it on dry ground without waiting for my neighbor; and to my great surprise the machine put all the potatoes nicely on top of the ground the very first trial. The ground is so dry now, Aug. 10, that considerable of it breaks up in hard lumps, notwithstanding our thorough cultivation.



THE DOWDEN POTATO-HARVESTER.

You will notice there are good-sized draft-wheels, so that nothing can stop the machinery short of a stone wedged between the chain and the shovel. The shovel is set by the hand lever so as to go just deep enough to get under all the potatoes, and no deeper. The dirt then goes up on the revolving chain, which gives it a thorough shaking, so that the chunks have to be extremely hard if they are not broken up. If they do not break up and rattle through the chain, they go over with the potatoes. The rakes which you see on the rear of the machine run the potatoes all down in a straight pile, so you can dig every row as you go along without any danger of the horses or draft-wheels bruising the potatoes. The machine is exceedingly simple, and every thing that is liable to wear out has a movable box, or some equivalent, so the worn-out piece can be replaced at a very small expense. With the old digger we used to be obliged to go over our ground with cultivators and harrows, and keep picking up every time the ground was moved; and even after all this fuss and trouble, a great many nice large potatoes would be left in the soil. We know this, because they would be coming up the following spring all over the field; and in plowing the ground for other crops, either in the fall or spring, we would be always turning out large nice potatoes. With the machine illustrated above, you get all the potatoes the first time. I suppose they might be run into a bag or box; but as stones, lumps of dirt, and small potatoes, would go into this box also, it is generally thought best to let the pickers pick up what they want, and leave the rest on the ground. Wilbur Fenn, of Tallmadge, Ohio, teaches his pickers to gather the first time only the No. 1 potatoes; then after the best ones are all put away he goes over the field the second time, and picks up the seconds—every thing in the shape of a potato, if I am correct. These seconds can be further sorted in the cellar during stormy days—that is, if the grower has a market for seconds.

Perhaps I should add that we did all of our digging with our one heavy team; and although they are nearly twenty years old they walked right along with it, without any fuss at all. If we had potatoes enough to keep them steadily at it all day long it might be better to have three or even four horses. I suppose considerable would depend on how mellow the soil is.

I shall be glad to answer any questions in regard to this machine, or the manufacturers will send you catalogs, with letters from potato-growers who are using their machines, scattered all over the United States. Address the Dowden Mfg. Co., Prairie City, Ia.

THE DARLING STRAWBERRY — AT LEAST ONE GOOD REPORT.

The Darling I had from you two years ago was a grand success, although the first crop was quite cut off by frost just as they were ripening. The plants seem to stand the long-continued heat of this section best of any. H. FITZHART.

Dalkeith, Fla., July 24.

SEVEN-TOP TURNIPS; HOW TO MAKE THEM BLOSSOM FOR THE BEES, WHEN DESIRED; THEIR VALUE FOR PASTURE, ETC.

I have had quite an experience with them. I have sown them for years for pasture and fertilizing, and I believe the bloom can be obtained in August, or any month after that it naturally blooms. I have kept it back for six weeks by letting my sheep graze it off. I will try it next year, and see how long it can be kept back, and then bloom. O. GLEASON.

Volney, Mich., July 14.

THE PORTER APPLE.

Friend Root:—On my place in Granger, Medina Co., some ten years ago, I had several trees of the Porter, which gave very abundant crops, and I always consider it a fine apple; but the reason I think it has not been generally planted is because its time of ripening is about the same as that old standby and well-known apple Queen Ann, which it resembles very much in shape and size, and time of ripening, but differs in color and flavor. Which is the better apple I think will depend on the taste of the eater. When I had Porters in abundance I wanted the Queen Ann, which was my favorite when I was a boy; but now when I have plenty of Queen Anns I should like very much to have some of those Porters, such as I used to have. I do not think either apple can be ahead of the Maiden's Blush or Gravenstein as a fall apple. My brother said that, at the experiment station, the Maiden's Blush was the most profitable apple they have in their orchard at any season Its handsome appearance pleases the grocers, and it cooks so nice it pleases the women; but for quality I don't believe that any fall apple can equal the Gravenstein. I have never heard before that the Porter was especially noted for its early bearing. Perhaps it was because you got a good tree and put it in a good place.

Medina, O., Aug. 5. E. C. GREEN.

But, friend G., the Gravenstein, Maiden's Blush, and Queen Ann, are all considerably later in our locality than the Porter. Our Porter apples ripened right along with the Early Harvest and Red Astrachan, almost a month before Maiden's Blush; and Gravenstein, in our locality, is not nearly ripe yet. I should put the Porter ahead of any of these, besides being so much earlier.

HEALTH NOTES

BY

A. I. ROOT

I have taken the liberty of extracting the following from a very kind letter:

Two years after we were married my wife became afflicted with a large ovarian tumor. The doctors failed to know what it was until she was very large; then we called in the elders to pray for her, and then she wanted to visit her folks in Pennsylvania. She was so bad and sore we had to carry her part of the way from the railroad to her home. Then we went to see a traveling specialist who claimed to remove tumors, cancers, etc., without a knife; but I soon saw that he was a terrible quack, and did not know as much about tumors as I did, and was *swiping* the people terribly (always beware of traveling specialists; a good specialist has more than he can do at home). Then we went to Philadelphia, and seemed to be providentially directed to the Jefferson Medical College Hospital, where they removed the 50-lb. tumor with the knife most successfully, and where she had the best of care and treatment, and remained there only 32 days, and it cost only $32 00, and now she is stout and well again, and has two children.

About using tobacco, you say it is on the increase in some churches. Well, I am glad to say that, among our people (the Mennonites), it is on the decrease. I know quite a few old men who have quit, and among our ministers there is scarcely one in a hundred who uses it. In fact, among the 160 or 170 of them, whom I am acquainted with, I don't know of one who makes a practice of using tobacco.

East Lynn, Mo. P. HOSTETLER.

Several valuable points in the above should be noted. First, the prayer was answered by directing the friends to the medical hospital, and I believe that is the true divine healing. God guides and directs us so we can avail ourselves intelligently of the best helps of modern surgery. Second, the point made about traveling specialists should have a still stronger emphasis. A good physician always has all he can do at home, without going about hunting up jobs. Third, there is one medical college, at least, that cures patients, and does not charge any extravagant prices either. I should say that $32.00 for 32 days' treatment is very reasonable indeed. The fashion of charging $400 or $500, especially where the sufferer and his friends have but little means, is a shame and a disgrace to the present age. Friend H., I am exceedingly glad to know that tobacco is on the decrease in at least one of our Christian denominations.

PURE AIR, PURE WATER, ETC., INSTEAD OF DRUGS.

Forty-eight years ago I became an enthusiastic advocate of the hydropathic system of treating disease, which I consider specially valuable on account of its warding off the popular reckless use of drugs, consequently I read all you say on health in GLEANINGS, and am in accord with most of it (I got one of the sanitary stills lately). One year ago I got a copy of "The Home Handbook of Domestic Hygiene and Rational Medicine," by J. H. Kellogg, of Battle Creek, Mich. So complete, practical, and common sense is it in all its departments, it is deservedly the most popular treatise on the subject that I have ever seen, to enable sickly people to avoid being robbed and even killed in the strife to get money out of them. This makes it a "family physician" right in the family, to consult on all occasions. R. WILKIN.

Famoso, Cal., July 18.

MONEY LOST IN THE MAILS, ETC.

Pretty much all the time we are having more or less unpleasantness and hard feelings on account of lost money. Quite a number of the friends do not seem to appreciate the very thorough system and discipline that we keep up to see that there is no chance for blame or loss at our end of the route. When the sender declares the money was sent us, and we declare it never reached us, a good many times he thinks we are just as likely to be mistaken as he is. Perhaps I can make it clearer why we are not likely to be at fault, by a little explanation. We have had years of experience in this matter. The lady who opens the letters (Mrs. A. I. Root's sister) is not only an experienced hand in the work, but she has been blamed so many times she takes the utmost precaution. In the first place, the letters are opened on a large table, where nothing can be dropped. The letter and envelope are held in her fingers until she reads far enough to find out how much the writer says he incloses. Then, without laying any thing down, or mixing it up with any other business, she marks on the letter just what the envelope contains. If there is any disagreement, a shortage-card is addressed to the writer, giving him further facts in the case, while she holds every thing in her fingers. Furthermore, if there is a loss our postmaster is notified, and steps are taken to trace up the missing money as far as possible. The two following letters show up two things: 1. The care with which Mrs. H. follows up every report of loss of money; 2. The mistakes that often happen in mailing letters.

> *A. I. Root Co.:*—On Apr 5 I inclosed you $1.00 for a Corneil smoker, and asked you to send it by return mail. I have not received either smoker, reply of any kind, nor any satisfaction whatever. Kindly give this your immediate attention, and send it at once, as I need it badly. I am engaged in the bee business, and my smoker gave out. Please send it *at once*.
>
> Greencastle, Pa., Apr. 24. E. F. HESS.

You see our clerk did not drop the matter, even if the sender of the money did. She wrote again, asking him what he had found out in regard to the lost money; and I myself offered to send him a smoker at half price, under the circumstances, if the money could not be found, and here is his reply:

> *A. I. Root Co.:*—In reply to your letter regarding my lost money, I will say that, after waiting a reasonable length of time for my smoker, and it failing to come, I investigated the matter (as I did not mail the letter containing my money *myself*), and found the party to whom I gave my letter to mail never mailed it at all, but carried it in his pocket for several weeks, and finally discovered it, and gave me my letter and money back again. So I will release you from all blame. Many thanks to you for investigating the matter so thoroughly. I procured a second-hand smoker in the meantime, which seems to answer our purpose fairly well. E. F. HESS.
>
> Greencastle, Pa., May 2.

Humbugs and Swindles.

> I inclose you circulars. Kindly look the same over, and let me know if this is not the Arctic Co. I always believed them to be the same. They defrauded me of $5.00 for a freezer. I could obtain no satisfaction. I always intended to give them a free advertisement, but have neglected it. O. L. SMITH.
>
> Grand Coteau, La.

The circular inclosed hails from 109 East Sixth St., Cincinnati. It is entitled "The Alaskan Refrigerating Co." It is a little singular that the swindlers should send any machine at all, especially as the machines are of no use whatever after people get them. Their plan of getting money, however, is that the circular persuades the victim that he can, by taking the machine and *exhibiting it*, take orders almost everywhere. One person saw our notice in GLEANINGS after he had paid for his machine, and then wrote us, asking whether we thought it would work, without even having tried it. We told him to test it according to directions, by all means, and *then* report; but we have not heard from him since.

Special Notices by A. I. Root.

DWARF ESSEX RAPE.

Last fall, on one of my wheelrides, I passed a field of the above that stood two feet high or more, where it was sown in corn at the last time of cultivating. There was an immense sight of it in the field, and it was just a "sight." I think this was toward the first of November. During this present month and next is the time to sow it. We have a lot of very nice seed. Per pound, 12 cts.; 50 lbs or more, 9 cts.; 100 lbs., $8.00. If wanted by mail, add 8 cts. per lb. for postage. As with sweet clover, stock must be taught to eat it; but when they once learn what it is, you will have to be careful about letting them get too much of it at once. For sheep and lambs, perhaps there is nothing else equal to it. See leaflet, mailed free on application. It is so hardy that it will stand frosts and freezes, frequently clear up till Christmas.

CRIMSON-CLOVER SEED—ADVANCE IN PRICE.

Some prominent agricultural writer said a short time ago that thousands of dollars had been *wasted* by farmers in the North in experiments on crimson clover. This may be true, but at the same time more and more people are succeeding with it, both north and south and east and west. The best evidence of this is that just now, when it is time to sow the seed, the price has rapidly advanced from $2.50 to $4.50 per bushel. At the present price it will pay well to grow the *seed* right here in our locality, aside from the tremendous value of the crop to the soil where it is grown. Seed can be sown among growing corn so as to produce a heavy crop of clover to turn under before corn planting time again next spring. The best prices we can possibly make now are, bushel, $4.50; peck, $1.25; pound, 15 cts.; 1 lb., by mail, 25 cts.

AMERICAN PEARL AND PRIZETAKER ONION-SETS.

Our crop of these is small this season, but they are extra fine. What we mean by this is, they are small-sized sets, from the size of a pea up to half an inch in diameter. These are worth ever so much more, because you get more of them in a quart, and they are not liable to send up seedstalks. Either kind may be planted out now, and with good underdrained ground they will, as a rule, winter over all right; but with our present short crop we can make no better price than 25 cts. per quart; by mail, postpaid, 35 cts. We have any quantity of the Egyptian or winter onion-sets at 10 cts. a quart; 50 cts. a peck; $1.50 a bushel. Of these latter we can give you either large or small sets as you choose.

TRANSPLANTED POTTED STRAWBERRY-PLANTS.

As a rule I do not like to complain of others who are in the same line of business as myself; but I do think that people who are buying strawberry-plants in the fall ought to be kept posted in regard to the improvements that are being made in this line of business. For instance, several growers are advertising potted strawberry-plants by mail; and I have taken pains to order from some of those who send out magnificent catalogs especially devoted to potted strawberry-plants for fall planting. I have just received some potted plants from one of the largest seedsmen in the United States; and when I came to unwrap them and see the poor wilted things with little bits of roots, I really felt sorry for the great seedsman; and I think I feel still more sorry for his customers if he sends to them such plants as he sends us. I am sending him trial orders every year, so I feel sure he is not making any improvement. I am forced to believe that neither he nor his brother-seedsmen know any thing about strawberry-plants potted in jadoo. Let me tell you again how we do it.

Two-inch pots are filled with jadoo, sopping wet. A runner that has just begun to make root in the soil is pushed down into the middle of this ball of jadoo, and the pot, runner and all, is set by the mother-plant clear under ground. If it is a dry time the large plant is kept wet, and the ground around it. In five or six days the white young roots will be clear to the outside of the pot. The runner is then cut off, the plant is removed from the pot, and carried to the nursery. This nursery is a vat made of galvanized iron, any size that the business requires. I would have it so the usual shutters (or sash) used by gardeners will cover this nursery, say 3x6 feet, if for one shutter; and if you want it larger, twice that size or three times; that is, so as to hold one, two, or three shutters or sashes. This tank will hold water; but there is an opening with a plug so you can let the water off when it rains hard. This nursery is filled with rich compost—old stable manure, rotted sods, etc. These little plants are put in, say, 3 inches apart, each way, and are watered by sub-irrigation, which I suppose you all understand. Now, when new white roots have started out from the ball of jadoo, into the soil surrounding them, the plant is ready to send off by mail or express; and, oh my! what a contrast when the purchaser takes his plant out of the neat little mailing-box made of basswood! Why, the plant is so handsome after its long trip in the mails that it is just fun to carry one around and show it to people. We send out a good many plants with runners already started, so the purchaser may have a new plant from the one he purchased, in a week or two, providing he catches on to the plan described above, and keeps the new plant well watered if it does not rain. Any one who likes to fuss with plant-growing, as described above, may grow his own plants at a very insignificant cost after he once gets a few for a start, and the most severe drouth does not hinder a particle. Keep your plants in the nursery until the fall rains come on, and put them out in the field. I think I would shake off the most of the jadoo, or mix it well with the soil around the plant, for field planting, because the freezing and thawing of winter, and especially spring, is much more liable to throw out a plant grown in jadoo than where grown in ordinary soil, as the jadoo is so very light and friable. Now, I would recommend every strawberry-grower, who has not seen a potted plant as above, to order at least one for a sample. We have a very good stock on hand ready to ship, of nearly all the varieties mentioned in our catalog; and until further orders you may have any of them (including Nick Ohmer, Glen Mary, and Clyde) postpaid by mail for 4 cents each, or for 3 cents each by express, not prepaid. Fifty or more potted plants I think I would have sent by express.

SPECIAL NOTICES BY BUSINESS MANAGER

MUTH JARS

We are notified of an advance of 20 per cent on Muth square glass honey-jars, so must raise our price to the following, to take effect at once: 5-oz. jars, one gross in box, with corks, $3.25, or $2 25 per 100; ½-lb. jars, one gross in box, with corks, $4.40, or $3.00 per 100; 1 lb. jars, half gross in a box, with corks, $5.70, or $4.00 per 100; 2-lb. jars, half-gross in box, with corks, $7.50.

POUDER JARS.

Notice slight advance in prices on Pouder square flint-glass honey-jars as follows: Crate of 100 16-oz. jars and corks, $4.00; crate of 100 8 oz. jars and corks, $3.00; crate of 100 5-oz. jars and corks, $2.25

ADVANCED PRICE LISTS.

As advised in our last issue, we append below new price lists on various lines of goods which go into effect at once. The advance on wire nails is much greater than I anticipated it would be. The manufacturers adopted, on July 20 a new list of prices on fine wire nails, which is about double the old list; hence the large advance on these sizes. The advance in perforated zinc has been in effect for some time, also part of the advance in Record pails.

Advanced price lists will follow in later issues on other items. When you take into consideration the fact that the different grades of lumber that we use in the manufacture of goods have already advanced 20 to 80 per cent, and that every prospect points to still further advances, also that wire nails and other wire products have doubled in price; that tin plate has advanced 70 per cent, and is likely to go still higher, and other metals in like proportion, you must not be surprised at a much less percentage of advance in the price of manufactured products. With all these advances comes also an advance in the cost of labor, which enhances the cost of manufacture as well. Our profits have not been such as to enable us to pay all these advances and still sell goods at the same old price; hence the necessity for marking prices up.

HONEY-BOARDS.

R before the number indicates Root zinc, and T indicates Tinker zinc. Order by number and name, and carry out the price.

No.	Name and Size.	Price of 10.	Weight of 10.
R 1	10-frame unbound zinc, 14x19⅛.....	$1 60	9 lbs.
T 1	10-frame unbound zinc, 14x19⅛......	2 20	9 lbs.
R11	8-frame unbound zinc, 12x19⅛.....	1 40	8 lbs.
T11	8 frame unbound zinc 12x19⅛......	2 00	8 lbs.
T 9	8-frame wood-zinc, 13⅞x20..........	2 20	13 lbs.
T10	10-frame wood-zinc, 16x20............	2 40	14 lbs.
R12	10-frame wood-bound zinc, 16x20...	2 00	11 lbs.
T12	10-frame wood-bound zinc, 16x20...	2 10	11 lbs.
R13	8-frame wood-bound zinc, 13⅞x20	1 80	10 lbs.
T13	8-frame wood-bound zinc, 13⅞x20	2 20	10 lbs.

Root zinc strips, 1 row holes, ¾x18 to 19⅛, per 100, $1.10.
Tinker zinc strips, 2 rows holes, 1⅜x18 to 20, 100, $1.50.
Root zinc sheets, 28x96 inches, each $1.60.
Tinker zinc sheets, 24x40 inches, each 80c.
Cut pieces of Root zinc, 12c a ft.; Tinker zinc, 15c a ft.
Entrance-guards, Tinker zinc, $1 00 for 10.
Entrance guards, Root zinc, 75c for 10.
Either 8 or 10 frame size.

TINNED WIRE.

Sizes furnished.	Price each	Price doz.	Post. each.
¾-oz. spools No. 30 tinned wire...........	$ 03	$ 30	02
¼-lb. spools No. 30 tinned wire...........	12	1 20	06
½-lb. spools No. 30 tinned wire...........	18	1 80	10
1 - lb. spools No. 30 tinned wire..........	30	3 00	18
5-lb. coils No. 30 tinned wire...............	90		

GLASS FOR SHIPPING-CASES.

	Price. 10	Price. 100	Bx. of 50 ft. No.	Bx. of 50 ft. Price.
3x17¾ or 18 for 4-row cases.........	35	$3 00	133	$3 75
3x13¼ for 3-row cases	25	2 00	171	3 25
3x9 for 2-row cases	20	1 50	267	3 25
2x17¾ or 18 for 4-row cases.........	20	1 50	200	3 00
2x13 or 13¼ for 3-row cases.........	12	1 00	256	2 50
2x9 for 2-row cases	10	75	400	2 50
3x16½ or 17 for 4-row 4x5 cases...	35	3 00	140	3 75
3x15 for 4-row 3⅝x5 cases	25	2 10	160	3 25
3x12½ or 11½ for 3-row 3⅝x5 cases	20	1 75	200	3 25

SQUARE CANS.

No. in a box.	Capacity of each can in gallons,		in honey.	Price of 1 box.	Price of 10 bxs.	Wt. of 1 box.
1	5-gal.	can boxed	60 lbs.	$ 50	$ 4 60	10 lbs.
2	5-gal.	"	60 "	85	8 00	15 "
10	1-gal.	"	12 "	1 60	15 00	20 "
12	½-gal.	"	6 "	1 60	15 00	20 "
24	¼-gal.	"	3 "	2 80	27 00	25 "
100	1-gal.	"	12 "	13 00	120 00	110 "
100	½-gal.	"	6 "	11 00	100 00	80 "
100	¼-gal.	"	3 "	10 00	90 00	60 "

TIGHT-SEAL COVER PAIL.

	Capacity, lard	Capacity, honey.	Price 1	Price 10	Price 100	Wt. 100
No. 1 seal-cover pail.....	1 lb.	1½ lbs.	8	75	7 00	45
No. 2 "	2 lbs.	3 "	9	85	8 00	60
No. 3 "	3 "	4½ "	11	1 00	9 50	70
No. 5 "	5 "	7½ "	13	1 20	11 00	90
No. 10 "	10 "	15 "	18	1 60	15 50	140
Improved Dadant pail..	5 "	7½ "	10	90	8 50	

FLAT-HEAD WIRE NAILS.

Cement-coated, except first three.

L'gth.	Wire Gauge	No. in 1 lb.	Wt. of 5c pkg.	Price of 1 lb.	Price of 10 lbs.	Price of 100 lbs.
¼ in.	No. 21	17,500	1 oz.	.45	$4.00	$37.50
⅜ "	" 20	10,000	2 oz.	.30	2.80	25.00
½ "	" 20	7,500	2 oz.	.25	2.30	21.00
⅝ "	" 19	4,200	2 oz.	.20	1.80	16.00
¾ "	" 18	2,700	4 oz.	.16	1.40	12.50
⅞ "	" 18	2,350	4 oz.	.15	1.30	11.00
1 "	" 18	2,000	4 oz.	.14	1.20	10.50
1¼ "	" 17	1,200	4 oz.	.13	1.10	9.50

STANDARD (D) WIRE NAILS.

All cement-coated.

Style.	Length.	Wire Gauge.	No. Nails in 1 lb.	Price of 1	Price of 10	Price of Keg.
2*d* fine.	1 in.	No. 17	1440	10	85	$6 45
3*d* "	1⅛ "	" 16	1000	9	80	6 15
4*d* box.	1½ "	" 15½	550	9	75	5 80
5*d* "	1¾ "	" 14½	366	9	75	5 65
6*d* "	2 "	" 13	250	8	70	5 45
7*d* "	2¼ "	" 13	236	8	70	5 45
8*d* "	2½ "	" 12	157	8	70	5 30
9*d* "	2¾ "	" 12	130	8	70	5 30
10*d* "	3 "	" 11	107	7	65	5 20
4*d* casing.	1½ "	" 15	550	9	75	5 80
6*d* "	2 "	" 13	250	8	70	5 45
8*d* "	2½ "	" 12	157	8	70	5 30
3*d* common.	1¼ "	" 15	615	8	70	5 75
4*d* "	1½ "	" 13	322	8	70	5 45
5*d* "	1¾ "	" 12½	254	8	70	5 45
6*d* "	2 "	" 12	200	7	65	5 30
7*d* "	2¼ "	" 11½	154	7	65	5 30
8-9*d* "	2½ "	" 10½	106	7	65	5 15
10*d* "	3 "	" 9½	74	7	60	5 05
16*d* "	3½ "	" 8	46	7	60	5 00
20*d* "	4 "	" 6	29	7	60	4 90

Superior = Italian = Queens.

Having purchased one of the daughters of W. Z. Hutchinson's one-hundred-dollar queen, advertised in Gleanings I am now breeding from her, and the queens are fine indeed. They are reared under the most favorable conditions, by Doolittle's method. Fifty cents each; ½ doz., $2 50; dozen, $4.50. Safe arrival.

W. J. FOREHAND, = FORT DEPOSIT, ALA.

QUEENS, QUEENS, QUEENS.

By Return Mail.

Bred from imported mothers; dark leather-colored stock; extra honey-gatherers; also from light yellow and albino strains at very low prices. My stock is of the best. Forty years' experience warrants me in saying this.

Select tested	each,	$1.50.
Warranted purely mated	each,	.75.
Warranted purely mated	six,	4.00.
Warranted purely mated	dozen,	7.00.

Send for 40-page catalog of bees and queens; also a full line of bee-keepers' supplies, including The A. I. Root Co.'s goods at their prices.

W. W. CARY, = Lyonsville, Mass.

In writing, mention Gleanings.

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486, 488 & 490 Canal St., Corner Watts St., N. Y.

Honey and Beeswax.

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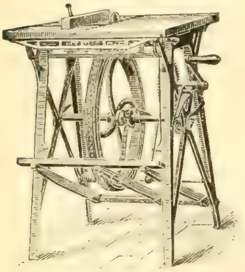
Albino Queens. If you want the most prolific queens, if you want the gentlest bees, if you want the best honey-gatherers you ever saw, try my Albinos. Warranted queens $1.00; untested, 75 cents.

J. D. GIVENS, Lisbon, Texas.

WARRANTED QUEENS from imported mother, 50 cts. Hybrid queens, 25 cts.

J. B. Hains, Bedford, Ohio.



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No better wheels made. Others at $10, $13.50, $15.50, $17.50 & $19.50; all splendid value. Buy direct from manufacturers, thus saving dealers' large profits. Write today for special offer. Illustrated Catalogue Free. **CASH BUYERS' UNION, 162 W. Van Buren St., B-345, Chicago, Ills.**

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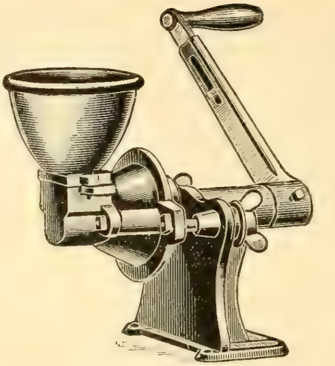


Do It Yourself.

Be your own Miller....

Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**

Address **The Frank Machinery Co., Buffalo, N. Y.**

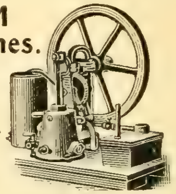
In writing, mention Gleanings.

Pierce FARM Engines.

3-4 and 1 H. P. For Separators, Churns, **etc.**, Stationary to 20 H. P. **Pumping Engines** all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO.,
Box 17, Racine, Wis.

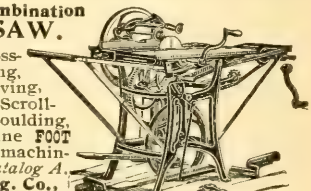
In writing mention GLEANINGS



Union Combination SAW.

For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line **FOOT** and **HAND POWER** machinery. *Send for Catalog A.*

Seneca Falls Mfg. Co.,
44 Water St Seneca Falls, N. Y



IF YOU COULD

buy a wagon that had everlasting wheels **WOULD YOU DO IT?** Wouldn't it be economy to do so? Well here's how. Buy a set of **Electric Steel Wheels** They can't dry out and get loose; they **CAN'T ROT OR BREAK DOWN.** Don't make any difference what wagon you have we can fit it. Wheels of any height and any width of tire. May be the wheels on your wagon are good. If they are buy **A SET OF THESE** and have two wagons a low one and a high one. Send for catalogue, it is free.

Electric Wheel Co., Box 95, Quincy, Ills.

"Pin Money" Easily Obtained.

Any one (even boys and girls) can make money fast growing and selling Pansy Plants. Be sure and plant the BEST SEED, and sell them when they begin to bloom. You have no idea how readily they sell at big prices. Friend Cook is almost giving away his choice Pansy Seed—50 varieties. See page 629. Now is the time to plant them.

Mr. Root

is trying to find a queen possessed of such superior qualities that he can afford to pay $100 for her; and her daughters will be held at $25. I doubt if he finds a better queen than the one from which are reared the queens that I am selling at $1.50 each. In all of my twenty odd years of experience in buying, selling, and testing stock from every possible source, I have found none that equals this strain. Remember, too, that I guarantee safe arrival, safe introduction, purity of mating, entire satisfaction.

* * *

An Extra Offer.

At this time of the year queens can be reared at less cost than earlier in the season; hence, I am going to make a little better offer; not in the price of queens themselves, as a queen alone will be $1 50, but for $2.00 I will send a queen and the Review from the time the order is received to the end of 1900! More value for $2.00 you will seldom receive.

* * *

W. Z. Hutchinson, = = Flint, Michigan.

Your Need is shipping-cases, some five-gallon cans, a lot of those new Danz. cartons. Send for sample carton and prices, and be surprised.

Our Desire is to satisfy your need. We can do it with Root's goods at Root's prices. Cash paid for wax. Send for catalog.

M. H. HUNT & SON, BELL BRANCH, MICH.

Bee Supplies.

Root's Goods at Root's Prices.

POUDER'S HONEY-JARS,
and every thing used by bee-keepers.
Low freight rates; prompt service. Catalog free.

Italian Queens, 4 and 5 banded, not a hybrid in the yard. Untested, 75c. Tested, $1.00.

WALTER S. POUDER,
512 Massachusetts Ave., Indianapolis, Ind.

In writing, mention Gleanings.

Special Offer... For the next 60 days we will sell one warranted queen at 50 cents. These queens are warranted purely mated; half dozen, $3.00; dozen, $5.50. Address

LEININGER BROS., FT. JENNINGS, O.

FOR SALE.—Five acres *choice* improved land inside corporation of 1200; also residence and two lots, 146 colonies Italian bees and fixtures, one trained bloodhound and five pups. Reason—change of location and occupation on account of sickness.

Address ELIAS FOX, Hillsboro, Wis.

Cartons

for comb honey. If you will need any, send for sample. A better grade of cardboard is used than by most manufacturers, and the price is right. Odd sizes furnished in 1000 lots. Special price on quantities.

Shipping-cases and Honey-jars

in a variety of styles. Catalog free, describing full line of supplies.

Italian Queens.

We own two apiaries, and our bees are "hustlers" for honey. "All yellow" Tested Italian queens, $1.00 each; three for $2.50.

I. J. STRINGHAM,
105 PARK PLACE, - - NEW YORK.

BLOOD DOESN'T come out of turnips, nor GOOD QUEENS from poor stock, shiftless methods, or unfavorable conditions. My queens are reared RIGHT—by Doolittle's method—either from the best breeder of my golden stock or one of the BEST queens Doolittle ever owned. Your choice. They are large vigorous *business* queens, from selected, large, well-fed cells. WARRANTED queens, 50c each; dozen, $5 50. SELECT WARRANTED, 75c; six for $4.00. Sent promptly. Free catalog. Special rates for large numbers.

J. B. CASE, Port Orange, Fla.

QUEENS. Either five-banded golden or from imported Italian mothers, 60c each; 6 for $3 00. Breeder, $1.50. I warrant safe delivery and satisfaction, or no pay. Give me a trial.

CHAS. H. THIES, Steeleville, Ill.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

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Good News for Gleanings Readers.

I have arranged to furnish seed of 50 varieties of my wonderful Giant Pansies, and, better still give a present with them, worth far more than the trifle they cost. See page 629. Now is the time to plant the Pansies.

BEE-SUPPLIES.

ROOT'S GOODS--ROOT'S PRICES

MUTH'S HONEY-JARS,
MUTH'S HONEY-EXTRACTORS,
LANGSTROTH HIVES,

and every thing pertaining to same; in fact, every thing used by bee-keepers. Send for our catalog.

◆

WANTED---EXTRACTED HONEY.

I am now in shape to BUY extracted honey, either in large or small lots. Parties in the South, or in Kentucky, Indiana, Ohio, or West Virginia having any to offer will do well to sell to me, as Cincinnati is the greatest market for extracted honey in the States. Submit a small sample, stating quantity, style of package, and price expected.

◆

C. H. W. WEBER,
Successor to Chas. F. Muth & Son and A. Muth.
2146-8 Central Ave., Cincinnati, O.

References.—Western German Bank. Brighton German Bank Co., of Cincinnati, Ohio.

In writing, mention GLEANINGS.

A Beautiful Watch Given Free

to any boy or girl who will get up a club for a few Pansy Collections. You can do it in a few hours. Full particulars and complete outfit are included in the unrivaled collection offered on page 629.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—For cash, No. 1 white honey in Danz. 4×5 plain sections. Write for particulars. Four sizes of Prize cartons for comb honey, and 66-page book, "Facts about Bees," for 6 cts. in stamps.
F. DANZENBAKER, Box 66, Washington. D. C.

WANTED.—To exchange my Common Sense non-drip shipping-cases, holding 18 1¾-inch wide, or 16 wider sections, put up in lots of 50, laid down at your station for 8 cts. each, in exchange for No. 1 white and fancy comb honey at right prices in any quantity.
B. WALKER, Evart, Mich.

WANTED.—To exchange royally bred fox terriers for honey extractor, bees, or bee supplies.
Address MIAMI KENNELS, Cincinnati, Ohio.

WANTED.—To exchange two-frame nuclei, also three-frame nuclei, for Barnes saw, or offers.
W. M. COCKERHAM, Ronda, N. C.

WANTED.—A position as assistant with some bee-keeper in Florida or any other southern State. Have had some experience in keeping bees; age 28; have good habits. Address
520 Riverside Ave., Jacksonville, Fla.

WANTED.—Position with bee-keeper or fruit-grower. Good references as to industry and character; young man; single. NEWTON FOSTER,
Kingsbrough's Store, Tenn.

WANTED.—To exchange 3-band or golden queens bred in separate yards, tested or untested, for any thing useful to a bee-keeper.
JNO. M. DAVIS, Springhill, Maury Co., Tenn.

WANTED.—To exchange one Barnes foot-power combined circular sawing, grinding, scroll-sawing, and boring maching, for extracted honey or wax. Also 40 acres fruit or garden land near Ellenton, Manatee Co., Fla., title perfect and clear, for good unincumbered property north. Address
W. F. HASTINGS, Battle Creek, Mich.

WANTED.—Every reader who desires to earn pin-money easily (and be happy while doing it) to send for the pansy collection offered on page 629.

WANTED.—To exchange 100 shallow extracting supers—Heddon style, dovetailed, new—and new Cowan extractor, for extracted honey, incubators, or Pekin ducks. FRED HOLTKE,
No. 7 Pine St , Newark, Essex Co., N. J.

WANTED.—To exchange 120 acres of coal and farming land in Williamson Co., Ill., for a smaller, improved farm in Colorado, where bees and fruit do well. My farm has about 30 acres in cultivation, balance timber land — mostly oak and hickory; good grain and fruit land. This land is in the fruit belt of Illinois. Address C. W. HALL, Stanberry, Mo.

WANTED.—To exchange a beautiful parlor heater (direct from factory) for beeswax.
L. L. ESENHOWER, Spring City, Pa.

CONVENTION NOTICE.

Bee-keepers of Genesee Co., N. Y., are invited to meet in the town board's room, in Ellicott Hall building, Batavia, at 2 P.M., Aug. 31st, 1899, for the purpose of organizing a Genesee County Bee-keepers' Association. W. F. Marks, of Chapinville, N. Y., president of the New York State Association of Bee-keepers' Societies, will meet with us. Let all bee-keepers be present, and the result will be a good county organization F. H. FARGO.
Batavia, N. Y., Aug. 11.

Advertiser's Department of Short Write-ups.

Beautiful Pansies Almost Given Away.

This is what a pansy specialist says of the pansies offered on page 629:

Mr. A. T. Cook. Dear Sir:—For many years I have made a specialty of growing choice pansy plants — have tried many best varieties of leading seedsmen, and can truly say yours far surpass them all in vigor of the plants, size and number of blossoms, and great diversity of colors. I recently took a basketful to our minister's jubilee, and you certainly would ask more than 20c per packet if you could have heard the words of praise and exclamations of wonder and delight from those present, such as, "Oh, how lovely!" "The prettiest pansies I ever saw;" "I did not know they ever grew so large;" "Where do you get the seed?" etc., etc. It is no trouble to sell plants from your seeds—they sell themselves. I have been your customer for nearly 20 years, and have always been pleased with your seeds and the many "extras."
H. A. McQUISTON, Fair Haven, O.

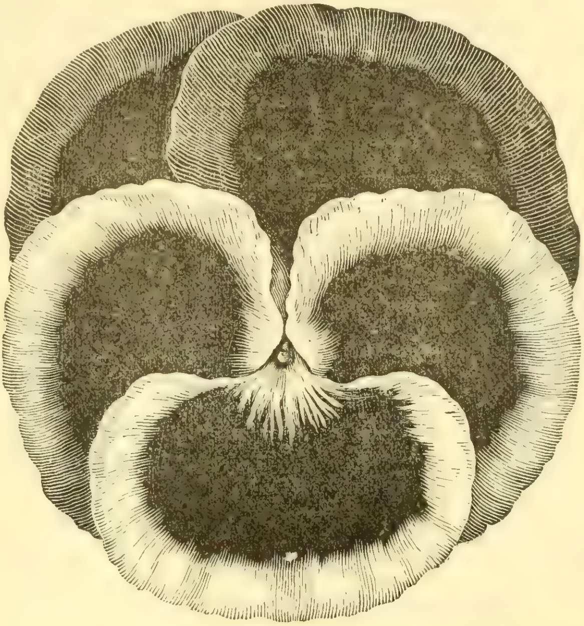
MY VISIT TO BOSTON.

I am sorry to say to the friends who have sent me so many kind invitations to make them a call that my visit east is indefinitely postponed. I may *perhaps* get away by the first of September.—A. I. R.

IMPERIAL GIANT PANSY COLLECTION.

Over 50 Lovely Varieties ; a Superb Mixture ; Almost Given Away to Introduce.

I also send with above seeds a magnificent full-sized picture of these pansies in 10 colors ; "Treatise on Growing Pansies," telling every one just how to succeed, and a practical up-to-date book on window gardening, all sent postpaid for ONE DIME (well worth 50 cts.). This offer is unequaled in the whole history of the seed business. I make it solely to secure your order, your friendship, and your future trade. Do not disappoint me. ☞ Now is the time to plant these beauties.



All the Grandest Giants.

All the Famous Prizetakers.

All the Odd, Curious and Unique.

Huge Jewels of Velvet and Gold.

Every Imaginable Color.

Blossoms 3 to 4 Inches in Diam.

Beautiful Beyond Description.

25 Years' Practical Experience.

Hundreds of First Premiums.

Thousands of Testimonials.

Club Agents Wanted Everywhere.

I Give Beautiful Watches.

No Trouble to Obtain Them.

Lot of Money in Selling Pansy Plants.

Pansies sown in the fall produce incomparably the finest and largest flowers of the brightest colors. They endure the hardest winters without injury, and will produce a perfect cloud of brilliant blossoms the whole season through. No flower will bloom as long; none will give as much pleasure. Pansies are the most popular and fashionable of all flowers, and every one should grow a liberal supply.

To Introduce my Giant Pansies to EVERY reader I will send the entire collection as above—including seed of 50 varieties, picture, essay, and book, all securely boxed and postpaid, for ONE DIME, or 12 cts. in stamps. Three collections for 25 cts.; 15 for $1.00. Please order at once. ☞ Every customer will receive free my illustrated catalog of bargains for 1900, soon as issued.

SPECIAL. If you order above PROMPTLY, and will agree to distribute a few pansy circulars, I will add a nice present that retails for 15 cts. Do not miss it. It will be a pleasant surprise.

Club-raisers Wanted. I give fancy engraved watches; stem wind; perfect time-keepers. Can be earned in a few hours. Full particulars and outfit included in the above collection.

Address A. T. COOK, Seedsman, Rock City, N. Y.

WANTED.—**Samples of American and Foreign Honey.** I am making a collection of samples of honey from different sources, and shall be pleased to hear from parties in any locality who can supply me. I have only some of our most common honeys now, so can likely use any variety that may be offered. Would like to exchange with as many as possible.

A. L. BOYDEN, Medina, O.

HONEY==WHO HAS IT?

We want large quantities of choice extracted and some comb honey. Will pay cash. Mail small samples and tell how put up.

J. A. Buchanan & Sons, Hollidays Cove, W. Va.

Sow Pansy Seed Now.

Pansies sown in the fall produce incomparably the finest and largest flowers of the brightest colors. On page 629 I make a great offer that none should overlook or neglect. A. I. Root has had dealings with me for 20 years, and knows me to be reliable.

Moore's Strain of Italians Ahead

in an Apiary of 125 Colonies.

CLINTON, ME., July 21, 1899.

Mr. Moore, Dear Sir:—Here inclosed $1.00. Please send me one of your select warranted queens. I have had two of you, and they are the best strain of bees I have had to gather honey. I have 125 colonies, and have tried all kinds of bees. C. H. GREELY.

It has taken 20 years' work—selecting and crossing—to produce such stock as this. Send for circular, and see what others say. Warranted queens, 75 cts. each; 6 for $4.00; 12 for $7.00. Select warranted, $1.00; 6 for $5.00; 12 for $9.00. Strong three-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed.

J. P. Moore, Lock box 1, Morgan, Pend. Co., Ky.

I have at present 50 black and mismated queens for sale at 25 cts. each. C. G. MARSH, Kirkwood, N. Y.

Mismated queens for sale at 30 cts. Two or three hybrids at 20 cts. C. G. FENN, Washington, Conn.

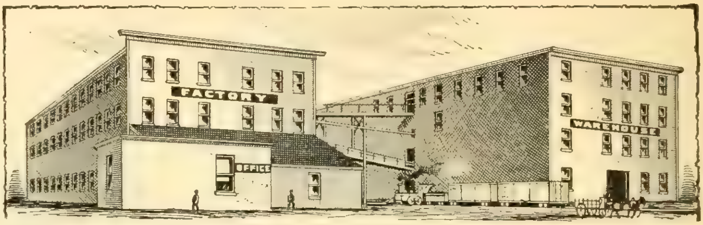
Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

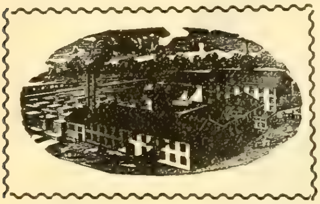
We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.



Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.



BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **Tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address E. KRETCHMER, Red Oak, Iowa.

In writing advertisers, please mention Gleanings.

Until October 1st : : : :

We will furnish the BEST of uutested Italian queens for 50c; $6 per dozen. Tested, $1 each. Beautiful yellow queens, large and healthy; bees the best of honey-gatheres. Orders filled by return mail, and satisfaction guaranteed.

J. W. K. Shaw, : : Loreauville, La.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

QUEENS. Untested, warranted purely mated, after July 1, 55 cts. each; 6 for $3.00. Select tested, $1.00 each; 6 for $5.00. Extra select breeding queens, $2 00 each. The very best of golden Italians. E. A. SEELEY, Bloomer, Ark.
P. O. M. O. Office, Lavaca, Ark.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

QUEENS. Reared from Italian mothers. Warranted purely mated. No better stock can be had at *any price.* 60c Tested, 80c. Try them. A. J. DAUTERIVE, Loreauville, La.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

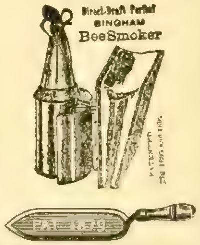
Smoke Engine (largest smoker made.)	4-inch	stove.	Doz.	$13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	"	9.00;	"	1.10
Conqueror	3-in.	"	"	6.50;	"	1.00
Large	2½-in.	"	"	5.00;	"	.90
Plain	2-in.	"	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	"	4.50;	"	.60
Honey-knife			"	6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

DETROIT.—Old honey has disappeared from commission row, and no new has been offered. Fancy white would bring 13@14c; other grades in proportion. Extracted, white, 6½@7c. Beeswax, 23@24c, with good supply.
M. H. HUNT & SON,
Aug. 22. Bell Branch, Mich.

PHILADELPHIA.—Honey arriving very freely, but high prices prevail; not much demand yet till next month. White fancy comb, 14@15; amber, 12@13. Extracted, fancy clover, 10c; amber and light, 7@9. Beeswax, 27c.
WM. A. SELSER,
Aug. 21. 10 Vine St., Philadelphia, Pa.

NEW YORK.—We are having a good demand for new crop comb honey, excepting buckwheat, and quote as follows: Fancy white, 14x15c; No. 1 white, 12@13; fancy amber, 11; No. 1 amber, 10. Extracted, firm at unchanged prices. Beeswax, dull at 25@26.
HILDRETH & SEGELKEN,
Aug. 22. 120, 122 West Broadway, New York.

COLUMBUS.—We are having numerous calls for new comb honey, but have none to supply demand with. Market not quotable, owing to absence of product. We are in the market for consignments, or for direct purchase, and will be pleased to hear from all who have honey to offer.
EVANS & TURNER,
Aug. 19. Fourth and Town Sts., Columbus. O.

CHICAGO.—A few consignments of comb honey received this week; some cases of fancy in plain sections sold at 15 cts., other lots at 13@14c, while No 1. sold at 12@13 cents. Amber grades 10@11 cents, and dark 7@9 cts. Extracted, white, 7@8 cts.; amber, 6½@7½c; dark, 6c; all selling well. Beeswax, 25@26c.
R. A. BURNETT & CO.,
Aug. 20. 163 S. Water St., Chicago, Ill.

ALBANY.—Honey market opening now, and some new coming. We are holding white comb honey high, as it is reported being an unusually light crop. We quote white comb 14@15. White extracted, 7@8c; mixed, 6@7; dark, 6@6½. We look for a good demand for honey this season, and advise early consignments for best prices and quick sales.
MACDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
Aug. 21. Albany, N. Y.

BOSTON.—The demand for honey is very light, as is usual this time of year, while stocks are extremely light, old stock being practically gone and no new as get. Owing to the poor crop prospects prices are firm, and it looks as though they would remain so. We quote our market. Fancy white comb, 1-lb. sections, 15@16; A No. 1, 14; No. 1, 12@13; No. 2, 10; light amber extracted, 7; beeswax, 27.
BLAKE, SCOTT & LEE.
Aug. 18. 57 Chatham St., Boston, Mass.

FOR SALE.—We have some nice basswood honey in kegs and cans at 8@8½ cts. per lb. Sample 5 cts.
I. J. STRINGHAM, 105 Park Pl., New York.

FOR SALE.—Choice alfalfa comb honey in Root's non-drip shipping-cases. Both plain and regular sections, 24 and 32 sections to a case.
J. E. PRYOR, Eagatete, Colo.

WANTED.—Offers on No. 1 extracted honey from cotton, in 60-lb. cans, two in a case. Honey is almost waterwhite, and flavor equal to any. Address
O. P. HYDE & SON, Hutto, Texas.

WANTED.—Your honey. We will buy it, no matter where you are. Address, giving description and price.
THOS. C. STANLEY & SON, Fairfield, Ill.

WANTED.—Comb and extracted honey. State price, kind, and quantity.
R. A. BURNETT & CO.,
163 South Water St., Chicago, Ill.

WANTED.—Quantity lots of comb and extracted honey. Car lots preferred. B. WALKER, Evart, Mich.

Queens, Queens, Queens.

We are headquarters for Gray Carniolan and Golden Italian queens. Untested queens, 65c: tested, $1.25; select tested, $2.25. Satisfaction guaranteed. Never saw foul brood. For prices on large orders, nuclei, full colonies, and imported queens, write for free descriptive price list.

Testimonial.

MEDINA, OHIO, May 29, 1899.
Gentlemen:—The nucleus of Carniolans you sent us came to hand promptly, in fine order. Have examined them nearly every day and find them very gentle indeed. Have a colony of select Italians, and in some respects the Carniolans seem easier to handle.
Yours truly, THE A. I. ROOT CO.,
Per A. L. Boyden.

F. A. Lockhart & Co., Caldwell, N. Y.

Moore's Strain of Italians Ahead in an Apiary of 125 Colonies.

CLINTON, ME., July 21, 1899.
Mr. Moore, Dear Sir:—Here inclosed $1.00. Please send me one of your select warranted queens. I have had two of you, and they are the best strain of bees I have had to gather honey. I have 125 colonies, and have tried all kinds of bees. C. H. GREELY.

It has taken 20 years' work—selecting and crossing—to produce such stock as this. Send for circular, and see what others say. Warranted queens, 75 cts. each; 6 for $4.00; 12 for $7.00. Select warranted, $1.00; 6 for $5.00; 12 for $9.00. Strong three-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed.

J. P. Moore, Lock box 1, Morgan, Pend. Co., Ky.

Root's Goods for California.

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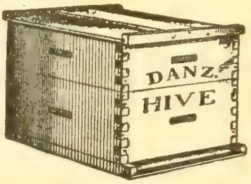

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Romeo, Mich., July 10, 1899.
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C. C. CHAMBERLAIN.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
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STRAY STRAWS FROM DR C. C. MILLER

I DON'T KNOW of any way in which a bee-keeper can get more comfort out of ten cents than to spend it for a pound of saltpeter, put that in two or three quarts of water, wring rags out of it, dry them, and cut them up into pieces of 20 to 50 square inches, to be tied up into little rolls to start his smoker.

IF IT'S RIGHT ever to *bear* the market, surely it is when the market is as *bare* as now. There's no sort of justice in commission men prejudicing the market by starting out with prices that fit a year or so ago. Prices in general are advancing, and a short crop doubles the reason for an advance. Those commission men and dealers who have put up their figures are showing sense. [Yes, and common cents too.—ED.]

HENRY ALLEY says: "Remove the queen from a hive, and the bees will in no case start a cell-cup around an egg, but always select a larva two or more days old." The only exception I have known is when eggs only are present. I formerly thought they would wait in that case till the eggs hatched out, but this summer I saw at least one case in which a cup was plainly formed about an egg, nothing but eggs being present.

REGARDING that queen about which you inquire, Mr. Editor, p. 603, her bees have filled 132 sections, and have a few pegs driven in a fresh super. She's two years old, wintered well, good-natured, but she's a hybrid. Spoils her as a reliable breeder; but if she holds her present record I'll breed from her for all that. [A hybrid would not do for a breeder. Her stock would run all the way from almost black to quite yellow bees. That is, I mean that the bees of her daughters would show such variation.—ED.]

SPEAKING of measuring with a micrometer, you say cells vary, and ask, "How are we going to prove any thing by measuring?" That's easy. Take a piece of freshly built comb, and another of 25 years, *each measuring the same number of cells to the inch*, and the difference in diameters will exactly measure what 25 years' use has done. See? [Y-e-s. At all events, send on your 25-year-old comb, and I will try to give you within the ten-thousandth of an inch the difference in measurement found.—ED.]

IN A FORMER NUMBER I referred to J. J. Cosby's way of using the Doolittle plan of queen-rearing, p. 303, and feared in-breeding by using the same mother for drones and queens. I thank F. L. Thompson for calling attention, in *Progressive Bee-keeper*, to my error. A more careful reading shows that Mr. Cosby has drones reared by the queen of the hive in which the cells are stored, the larvæ for queen-cells coming from elsewhere. His plan of having a best queen in his store-hive, and furnishing hybrid brood from elsewhere, is fine.

EDITOR HUTCHINSON says his bees don't do as mine do. His start all cells at nearly the same time, and so nearly of an age that they emerge from the cells within the same two days. As he's a queen-breeder and I'm not, that shook my confidence in my own observations. But that veteran queen-breeder, Henry Alley, who has reared many more queens than both of us put together, says I'm right. He says: "When I have removed a queen from a colony for the purpose of introducing another, I find, after waiting three days, cells nearly ready to cap, while there are others just started."

DECIDEDLY, I like those organ-key springs to squeeze together sections in super. Please tell us who conceived such a bright thought. [Those super-springs, as you found them in the supers, were devised by Mr. Fr. Danzenbaker. He got the principle, I believe, from Mr. M. H. Mendleson, of California, who uses a flat steel spring. It is more expensive, and not as well adapted to the purpose. From some correspondence that has come in of late, it seems others have been using something similar. But Mr. Danzenbaker says he was prior in the *specific form* of springs used in his supers.—ED.]

YOU'VE TRIED drone-cells, Mr. Editor, and bees with a laying queen don't take to them for queen-cells; and you ask, "Why should they start with drone-cells?" Let me in turn ask, "Why should they start with worker-cells?" for you seem to ignore my statement that bees with a laying queen will start queens in worker-cells supplied with jelly. Not always; neither do I always succeed with Doolittle cups. [You say, doctor, that "bees with a laying queen will start a queen in a worker-cell supplied with jelly." They do not do that way down here in Medina—at least I never observed it. I will assume that they *may* do so; but even then I should be under the impression that it was only under special conditions.—Ed.]

The novice may be a little muddled with a brace of errors in that footnote, p. 606. Second column, second paragraph, says "prepared drone-comb cells." That's mixing in Jones and Fooshe. Alley uses worker-cells, not drone-cells. At top of p. 607 is said, cells may be put in any strong colony providing it is stimulated, "if honey is coming in," meaning "if honey is *not* coming in." [A beekeeper *might* understand what I meant. I did not mean to say in the first instance *drone*-comb cells. I meant to put in its place "worker." In the next instance, the word *not* should surely have been in. With these corrections the novice will get my meaning a little better.—Ed.]

You speak, Mr. Editor, of getting cell-cups accepted with the *food of the ordinary* worker-cell, as if there was a difference between that and royal jelly. Have you forgotten that, during the first three days, workers and queens are fed on the same *kind* of food, there being a difference in quantity, and that the workers are weaned at three days while the same food is continued to the queens? So it's all the same whether the food be taken from queen larvæ or young worker larvæ, if the same amount is taken. [Yes, I remember something to that effect; but why is it that Doolittle and all the others recommend taking royal jelly in preference to any other food? Or is it the fact that Doolittle and the others have not yet discovered that the food of three-day-old larvæ is the same as that for the larvæ of queens?—Ed.]

I weaken on the matter of the shape and size of cells having something to do with bees starting queen-cells. If you get a queen cell started in an artificial cup, using only the food of worker larvæ, and giving only the *same amount* as is found in a worker-cell, then that helps to prove that the cell has much or all to do with it. But the force of the argument is weakened by the fact that in the same place the bees will often start queen-cells on their own account out of ordinary worker-cells. If with the regular worker ration you get cells started *in every case* in the artificial cups, then that's clear proof of the effect of the cell-cups. [But is it the rule, doctor, that queen-cells will be started in a colony having a normal queen? You will not forget that these Doolittle cell-cups will not only be begun upon, but actually finished, in such colonies. Those having a supersedure queen will accept almost any thing; but I would not go quite so far as to say that cups rationed with worker food will, as a rule, be accepted where there is a normal (not supersedure) queen, because we do not know yet until we test the matter further.—Ed.]

The strangeness of the season continues—bees starving in June; white clover abundant, but no storing till after the middle of July; then very slow but steady storing till about Aug. 10, when clover seemed to disappear suddenly; but the slow steady storing kept right on, and Aug. 17 finds piled in the house about 25 finished sections per colony, with nearly as much more on the hives, filled and ready to seal, but the bees are slow about sealing. The honey is of the very best, but I don't know what it comes from. There's some sweet clover and unlimited cucumbers, but we haven't been in the habit of crediting cucumbers with such nice honey. The greenish pollen suggests red clover, but all the farmers say there isn't a field of red clover in this region—all winter-killed—only there's some on the roadside. If this thing keeps up long enough I'll report a good crop by Christmas. [Some four or five years ago, if I remember correctly, you had a season exactly like this. Most localities are not quite so accommodating. If clover does not yield by the middle of July, usually no clover honey is expected. You remember I once advised you, doctor, to leave your locality and go where there were basswoods. I will withdraw that advice.—Ed.]

A surprise has met me. A dozen or so supers were filled with sections, one side old-style sections with plain separators, the other side with plain sections and fences. In every case where there was a difference, and I *think* there was a difference in every case, in some cases a marked difference, the difference was in favor of the old style, the bees beginning sooner and finishing sooner. I don't understand it. I could understand it if there were no difference, but why the bees should do worse with freer communication is beyond me. Is it pure prejudice on the part of the bees? [This is indeed a surprise when most of the reports have seemed to be the other way. But in the interest of fairness and truth, I desire that this item should be as widely circulated as the items of the other character. *If* there is any advantage in a solid separator, such separator could be used with the plain sections; but in that case it will be a cleated separator. But plain sections with the same filling are preferred by the buyers. I take it that you yourself are partial to tall sections, from what you say on page 601, and that you are afraid that you will have to adopt them. Is it the tallness or the general appearance of the boxes, or what, that makes you think that way?—Ed.]

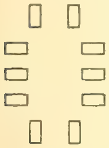
Examination made by you, Mr. Editor, showed that ¾ of the cases of travel-stained sections had the stain clear through the capping. I'm not prepared to dispute that all the dark cappings of my sections are dark clear through, but here's what I *know*. I know that, when a super is left on long enough over black combs, the lower part of the central sections becomes dark, and 100 per cent of those dark sections were at first capped white. If they're dark clear through, then the bees have a way of soaking the color through the white capping. Isn't it just possible that, in your examination, the dark color shone through the white layer? I wish you'd come to Marengo and fight out some of these things with me. I had just a lovely time fighting with Hutchinson when he was here. [Mr. Crane and I looked over a good deal of the honey that was travel-stained, and I afterward examined the lot after he went away. My own individual conclusion, as well as that of Mr. Crane, was that this stain went clear through the capping. I took a magnifying-glass and two needles to dissect some pieces, and I do not see how I could be mistaken in believing that this travel-stain went clear through. Again, as a further proof I bathed with a rag dampened in gasoline the surfaces of several sections of comb honey; for you know gasoline and benzine are solvents of wax. I washed gently quite a number of sections until the cappings were almost gone, leaving a mere gauze covering; and yet that travel-stain was there just the same, thus showing positively that the coloring-matter was not on the surface but *all through* the capping.—Ed.]

PICKINGS
FROM OUR NEIGHBORS' FIELDS.
BY STENOG.

Dryer! higher burns the fire
Of these August days;
Fields are parched and pastures wilted
By the noontide blaze.

BEE-KEEPERS' REVIEW.

In speaking of the arrangement of hives in an apiary, J. E. Crane lays stress on having them protected from the wind. He says it is hard to realize how much damage a strong draft of air through a yard of bees will do. He has had, in one or two cases, almost every colony die, during the winter and spring, on one side or end of the yard where there was a strong draft of air. He thinks the six-sided (hexagonal) plan very nice on paper; but after trying it one winter he found, the following spring, the central part of the yard greatly weakened by bees missing their own hives, and there was a great loss of queens. He now uses a plan like that shown in the diagram. Mr. Crane has planted a basswood in the center of most of the groups. The upper group faces north. The first at the top is No. 1, and so around as the hands of a clock move. Mr. C. insists strongly on numbering hives.



* * *

Our old friend H. G. Quirin (he seems to be about 20 in the picture), of Bellevue, O., relieves the monotony of life by giving us a bird's-eye view of his place. The country there is very level. In the lower half of the cut we see an open field with about 25 hives in it; beyond that is a larger number in an orchard. The telephone from New York to Chicago is seen in front of the yard, and it also goes equally near the Home of the Honey-bees, forming a connecting-link between us. Wire we not neighbors?

* * *

After writing the above I find I am reviewing a somewhat "ripe" number; but the story is too good to lose. I'll examine my dates and figs closer hereafter.

AMERICAN BEE JOURNAL.

On page 497 Mr. C. P. Dadant argues in defense of barrels, after an experience of thirty years. He agrees with Editor Hill when the latter says: "I have used a number of carloads of tin cans as honey-packages, and have found the percentage of loss through leakage greater than where barrels are used." The excessive dryness of some States seems to render tin more desirable than wood. Probably the trouble attributed to barrels is owing to the unseasoned condition of the staves, the honey absorbing what water they do contain, thus causing shrinking. On the other hand, doubtless tin cans are made too large for the strength of the soldered seam, and hence a leak results. With care, both materials, tin and wood, have their places.

* * *

Mr. York is working with commendable energy to make the Philadelphia convention a good one. Mr. York and Dr. C. C. Miller go together, starting Sept. 4.

* * *

Mr. York quotes an article from the *Michigan Farmer*, written by Geo. E. Hilton, suggesting that ministers keep bees. The chief objection would be that most of them live in large towns and cities, and they can all truly say, "We have here no continuing city." Churches nowadays change their preachers as often as the fashions flop about.

* * *

A correspondent inquires in regard to hunting bees during a honey-flow. Another says, in reply, "Go where you have reason to think the bees are, and find them at work on water. When they leave the water they will not circle, but go straight to the tree. Generally they get water at the nearest point, so if you are a mile from tame bees you may rest assured they are wild."

* * *

A month ago I referred to the fact that Mr. York addressed one of the Chicago schools on the subject of bees. His remarks were to be printed in a little paper issued by the scholars. Miss Anna Sundberg, a girl of fifteen, gave the following synopsis of Mr. York's talk. It is all from memory, and certainly shows much skill. She also made some fine sketches, which, of course, I omit. Here is the clipping:

BEES.

Thursday afternoon Mr. York was in our room, and told us a great many interesting things about bees. There are three kinds of bees, the queen, the workers, and the drones. The queen is long and narrow. She lays all the eggs in the hive, but never gathers honey nor goes where the surplus is stored. Her food consists of a finer quality of honey, called royal jelly. The worker is like the queen in every way except two. The first is that the lower part of its body is shorter; and the second is, that its work is different. It gathers the honey and pollen, which it stores away in the cells. The drone is larger and broader than the worker. It does nothing but eat and sleep.

The pollen is stored in the lower part of the hive, and here the queen lays her eggs. One egg is put into each cell. After the egg has been laid, and food put in for the larva, the workers plaster up the opening of the cell. There is some difference in the covering of the cells. Those of workers are flat, while the drone-cell caps resemble a mass of bullets, and the entire queen-cell is different. Her cell looks like a bag, and is shaped somewhat like a peanut. A few days after being laid, each egg is transformed into a small, pearly-white larva.

The queen develops in 16 days, the worker in 21, and the drone in 24. The workers seldom lay eggs; but when they do, only drones are produced.

Bees will gather honey for several miles around. The bee flies around the hive several times before it leaves, and when it comes back it flies to a certain height, and then in one straight line to its home.

The drones have no stings. The worker dies after using its sting, and the queen uses hers only in killing a rival, if she has any.

There are about 40,000 bees in a hive, and a strong colony of bees will store about 100 pounds of honey in a good season.

When the hive is overcrowded, the queen and a great many of the workers fly away and settle on the branch of some tree. This is called swarming, and causes a great deal of excitement in the hive when it happens. Anna Sundberg.

Who can estimate the good that may result from Mr. York's talklet before this school?

AMERICAN BEE-KEEPER.

Mr. J. L. Lattimer argues for the old-style section as against the plain. He says if both kinds are put on the table for sampling, the old style will be taken first as it has a neat oval appearance, while the plain sections will have a mussy appearance, caused by the honey flowing from the outside cells, very much as a piece of chunk honey would look on a plate. Oh dear! how easy to assume as fact what we imagine to be the truth. Mr. L. should have added a clincher, to the effect that the cook is sure to let grease spatter all over plain sections while the old-style ones always escape that dire calamity. How many housekeepers would think of putting two sections of honey on the table at a time? and how many would put on even one without first throwing the section into the stove? I confess I am unable to see why people should show so strong a preference for plain sections as has been reported in these columns time and again; but the preference is there, and it is just contrary to what Mr. Lattimer would have us believe, and that, too, without "puffing." Of course, those who buy honey to sell are wise in selecting that which sells best; but in buying it to eat I would pay no more attention to the section than I would select a coat according to the color of the box the manufacturer packed it in.

BRITISH BEE JOURNAL.

I quote the following from our British contemporary:

> We deeply regret having to record the death, under very sad circumstances, of Mrs. Chapman, wife of Mr. F. Chapman, of The Dairy, Wells, Somersetshire, well known as a successful bee-keeper and exhibitor. It appears that, on the evening of Wednesday, July 19, Mr. Chapman, accompanied by his wife and sister, went, by request, to the Lunatic Asylum, Wells, to inspect the hives there. One of the medical officers (who is himself a bee-keeper) accompanied them to the apiary, and nothing unusual occurred while the hives were being examined. This done, the party returned indoors. A bee apparently followed them in, for while in the corridor the insect got into Mrs. Chapman's hair; she became somewhat alarmed, and, as might easily happen under such circumstances, the bee stung her on the head. This further increased Mrs. Chapman's excitement, but the sting was extracted, and the party all walked down the corridor into one of the wards; here Mrs. Chapman fell into a faint, and, notwithstanding the joint efforts of the medical officer and her husband, she never recovered consciousness, but died in about ten minutes.

The coroner made an examination, and found death due to a defective valve in the heart, the excitement of the sting causing a failure of that organ.

GENERAL CORRESPONDENCE

NOTES FROM AUSTRALIA.

Drone-cell Queen-cups; a Practical Method of Clipping.

BY H. L. JONES.

Apiculture has been with me a life-long occupation; and if there is one branch that I am better versed in than another it is that pertaining to queens and queen-raising; and it is on this subject that I wish to have a little chat.

DRONE-CELL QUEEN-CUPS.

Two years ago you published and gave illustrations of my method of queen-raising, and expressed your intention of giving the method a trial in your apiary; but until Mr. Wardell came along and made a success of the Doolittle cell-cups, nothing more was heard of your queen-raising operations. Mr. Wardell, however, still uses the dipped cells, and I can not imagine how you progressive Yankees, with your love for labor-saving methods and short cuts, still prefer the dipped cells to the *more rapid* and just as effective drone-cell method outlined in my article in Gleanings, May 15, 1897. I have raised some thousands of queens since that article was written, and still prefer drone-cells to the dipped ones. Request Mr. Wardell to try this method, and report for the benefit of your readers.

CLIPPING QUEENS, FROM A BREEDER'S STANDPOINT.

I was pleased to note, a year or so ago, that you had seen the error of your ways, and had become a convert to queen-clipping. I have practiced this for more than 13 years, and I do not know a single objection that can be legitimately urged against it, while the advantages are many. But, aside from its importance to the honey-producer, the practice is of even greater value to the queen-breeder — a claim for clipping that I believe has never been made before. Now, *every* breeder will receive a complaint occasionally; and whenever I receive a bad one I send on another queen at once, and ask for the return of the unsatisfactory one; and on several occasions I have had queens returned with perfect wings in place of the clipped queens sent out. Of course, the first queens had been lost in introduction, and supplanted by worthless queens, unknown to the purchaser. In our printed directions for introducing queens we say, "Be sure the colony is queenless;" but peculiar and unexpected conditions prevail in colonies at times; and the novice, and some of more experience, also, occasionally attempt to introduce a queen to a colony that already has a queen of some sort, with the result that the choice queen is destroyed, unknown to the purchaser, and the breeder's reputation suffers as a consequence. Now, clipping is a grand check against mistakes of this kind; and if part of one larger wing only is cut, the appearance of the queen is but slightly impaired, and frequently the purchaser fails entirely to note the clipping.

BEST METHOD OF CLIPPING.

I don't like the method of clipping that you described some time ago, and I believe that, if you give the following plan a good trial, you will admit its superiority: Grasp the queen by the wings, and place her on the top of your left fore finger, which she will eagerly grasp; then bring your thumb down on her legs, and you will have her as securely as if in a vise. There will be no danger of her legs getting between the scissors, which should be slipped under the longer wing on only one side. The whole operation takes but a few seconds, and the queen can be liberated right on the combs by simply taking the weight off her legs, and she hardly knows that she has been interfered with, as her delicate body has not been touched. In clipping one wing only, it is advisable to clip it fairly short, as I have known queens to fly when the larger wing was clipped a little *shorter* than the under one.

WAS THE METHOD OF CLIPPING RESPONSIBLE?

I wish now to mention something very peculiar and unusual in regard to some drones that disported themselves in my apiary about nine years ago; and as I have never heard of any thing similar I should like your opinion on the matter. At the time mentioned I used to clip *both* the *larger* wings of my nice yellow queens pretty *short*, as this left them with a fine symmetrical appearance, and showed their beautiful color off to its best advantage; but, to my great surprise, several of these queens produced drones with unnaturally short wings — the upper wings, in fact, being no longer than the lower ones, so that much of the drone's body was exposed. In every other respect these drones were perfect, and could fly all right; but instead of the loud buzz-z-z of the ordinary drone, the sound they made was more of a buz-z-z. If you will clip the two upper wings of a drone to the length of the under ones, and let him fly, you will have the sound exactly. There is no mistake whatever about the facts above, as I noted down every thing most carefully at the time, and have been watching without success ever since for something similar, but can assure you that I now clip the wing on only one side.

AGE AT WHICH QUEENS BEGIN TO LAY.

One more subject, and I'm done for the present. Why is it that so many of your American works place the age at which queens commence to lay at so early a date? I keep a very complete record in all my queen-raising operations, from the date the larva is inserted to the time the cell hatches, queen commences to lay, etc., and I find from long and careful observation that, on an average, the queen begins to lay when about ten days old, and I have never known a queen to lay *under* nine days. Most of your American works put it from six to eight days, while English writers, such as Taylor, Neighbour, Cowan, etc., put it much earlier still; but Cheshire comes nearer my estimation, and puts it at nine days. In that beautiful little work, "The Honey-bee," Cowan puts it from five to seven days; but those figures most certainly will not hold good for this part of the world. Doolittle has it from seven to nine days; but there's some comfort to me in the fact that the two medical gentlemen, C. C. Miller and J. P. H. Brown, are alongside of me with the ten-day average.

Goodna, Aus., May 25.

[We did try the drone-cells, but were no more successful with them than we were at that time with the Doolittle cell-cups; but our Mr. Wardell has made the latter method so very successful that we hardly see how there could be an improvement, nor even a saving in labor. Yourself, Mr. Alley, and others, it would appear, in many cases at least, are obliged (or at least find it more practicable) to place these drone-cells filled with royal jelly *first* in queenless colonies, after which they are removed and placed in the upper story of strong colonies possessed of a queen. Now, right here it seems to me an amount of labor is involved that more than offsets the small amount of time consumed in making cell-cups, especially when it is understood that one with even crude methods can make at least a thousand such cups in a day. See answer to one of Dr. Miller's Straws in last issue.

Now, understand I do not claim that these drone-cells with royal jelly will not be started in colonies having a queen; but from what you and others who use the method write, I take it that you will generally find it necessary to use queenless colonies to start them in cups.

Your point with regard to marking your queens by means of clipping, so as to avoid mistakes, is a good one. Every year we have been obliged to replace queens that I felt morally certain were all right, but which I suspected were destroyed by the bees, and their place taken by inferior queens already in the hives. Your plan of requiring the return of such queens would give a means of determining whether any mistake had been made; and, what is more, it would determine whether some unscrupulous customer was trying to take advantage by misrepresentation.

Your method of clipping queens' wings may have been described before, but if so I do not remember it; but it strikes me as being one of the simplest yet proposed. But one will have to be careful and not pull too hard on the delicate legs of the queen; and then *if* a nervous twitch of the fingers should release the legs, then good-by queen.

With regard to the age at which queens begin to lay, this may be somewhat a matter of locality. One year I kept a careful record, and I found that queens began to lay, after hatching, all the way from 5 to 20 days. I had only one case where the queen laid within 5 days from the time of hatching from the cell; but a large number of them laid within 7 days; but the average was about 8 days. The five-day laying may be accounted for by the fact that the young queen in such a case had been confined in the cell, as Doolittle tells about, and consequently she matured while in the cell, and in a sense was more than 5 days old at the time of laying. When we were rearing queens with Holy Land stock I had one case where a queen flew immediately after emerging from the cell. The probabilities are that this queen had been confined in the cell, and very likely had been fed through the end of the capping; and when she was finally released, by pushing the head off while I had the hive open she popped out of the cell like a shot out of a gun, and flew a distance of six or eight feet, when I caught her. Since that time I have had other instances where the queen flew four or five inches, and then dropped down on the comb or on the ground. Now, if it is a fact that the bees confine the queens in queen-cells after the regulation day of hatching, this would account for the conflict in testimony as to the exact time when young queens are mated.

In speaking of the raising of cells, the Holy Lands are away ahead of any other bees in the world. But I do not want them for any thing but raising cells. They breed in season and out of season; indeed, they will breed themselves to the point of starvation, without let or hindrance, and sting worse than Italians. They are less hardy in winter, and are the worst bees in the world for fertile workers. Their one predominating propensity is to breed first, last, and all the time. But that one propensity can be made very useful to a queen-breeder if he can confine the blood to one colony, or at most to the requisite number of cell-building colonies.—Ed.]

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SHORT-WEIGHT SECTIONS.

Five-gallon Square Cans Condemned; Retailing Honey by the Gallon; Honey-pitchers.

BY THE AMERICAN TRAMP.

Hide not thy light under a bushel. About a year or so ago there was some discussion in Gleanings as to the best package for retailing honey. I was in hopes some bee-keeper would rise and tell it, but it seems to me that there are none who know it; for, if I remember, when the discussion reached the tomato-can it stopped short. Now let me find fault first before I tell you all I know. Bee-keepers are very foolish to sell their comb honey by the pound. The proper way is to sell it like the retailers, by the section. While in Florida I sold all my comb honey by the section, direct to the retailers. When I first started in, here is about the way I was met by the grocers:

"That's very nice honey; how much do you ask for it?"

"I want 12½ cents each."

"Well, but they don't weigh a pound."

"I did not say they did."

"But honey-sections are supposed to weigh a pound."

"Do *you* sell them by the pound?"

That generally settled it. There was no more said. My sections were 4¼×4¼, seven to the foot, and weighed about 13 ounces each. They sold right along side by side at the same price with the six-to-the-foot sections.

Now about the square five-gallon cans for extracted, which I think E. R. R. pronounced the best package so far. Now, I don't believe that he ever handled any personally or he would not call them good. I remember I started one day with three gallons of honey in one of them for a private customer. I had to drive ten miles over a Florida sand road. When I got to my journey's end it was hard to tell where the most honey was—in the can or in the wagon-box. In filling a five-gallon can it's a good man who will not spill from a pint to a quart doing it. Here is something else to study over. Putting up honey in five-gallon cans lessens the sale of honey. How? Well, I'll tell you.

I sold all to the retail trade, and made it a point not to sell the cans, taking away the empty cans, replacing them with full ones. Whenever I come into town I pick up my empty cans to carry home. One day I stopped in to one of my customers to take back the empties. He laughed, and told me that honey was getting to be a drug on the market. The cans were all full yet; he had not sold any of it. Two days afterward I was in the same store, and, while waiting to be waited on, I heard a lady ask for honey. The clerk said they had none. After the lady went out the same clerk waited on me. I said to him, "You must have had a big run on honey yesterday." He looked at me, but evidently did not know me, and asked me why. I said, "I heard you tell that lady that you had no honey, and Mr. E., the proprietor, told me two days ago that he had not sold any of the last lot I brought."

"Well," he said, "we have it all yet, but I do not want to mess up every thing pouring it out of those cans."

Did I wait and tell the proprietor about it? Well, no; because I always felt as did the clerk about those five-gallon cans. But I went out and thought a big think. The conclusion was, when I went home I carried back with me six empty ten-gallon whisky-kegs and six honey-gates. I cleaned the kegs inside, and painted them outside; put in a honey-gate and vent-plug; filled them with honey, and brought them back to town; left one at each store. The effect of this was, it increased my honey sales wonderfully. After once using these kegs you could not give away honey to these grocers, in a five-gallon can.

My idea for retailing honey by the gallon is a ten-gallon keg, made either out of wood fiber or paper, with a neat crate around it. This package is to be returned by the grocer. Placing this package on the counter, with a neat label on it, advertises the honey, and is a pleasure to the grocer in selling.

There is another benighted way we have of selling honey; that is, in glass tumblers (jelly-glasses). If you fill these the honey will work out and soil the labels, then no sane person will ever buy the second glass of honey, because it is worth more to take the cover off than honey-glass and all are worth. Nine times out of ten you chip the glass in taking off the cover, and, of course, the pieces of glass go into the honey, or at least we think so. As a chicken is about the only bird that can digest glass, we either throw the honey away or spoil ten cents' worth of linen to strain five cents' worth of honey. What shall we do for this class of trade? My ideal small package would be a nice glass syrup-pitcher, pint and quart size, either with metal top or a wood-fiber top or cork. Eddy & Eddy, of St. Louis, put up mustard in such a package, and I think this package is the most suitable, for many people would buy the first pitcher of honey for the pitcher's sake.

I write this in hopes that you will think it over and get up a nice cheap honey-pitcher and wood-fiber honey-keg at a reasonable price. I feel sure these two styles of packages are ahead of what we have now. The honey-keg needs a nice smooth crate around it, made so the grocer will have to remove only one slat, screw in his honey-gate, loosen his vent-plug, and be ready for business.

WIRING THE CATCLAW SHRUB, TEXAS. SEE PAGE 651.

[It is G. W. York, editor of the *American Bee Journal*, who is arguing for square cans as against kegs and barrels; but as I agree with him in the main I come in for my share of your criticisms.

In the first place, let me say that Mr. York, although it is not generally known, handles large quantities of extracted honey. Indeed, I venture to say that he has had considerably more experience with square cans, and kegs and barrels, than any dozen average producers all together, and his verdict is emphatically in favor of the tin packages.

One of your objections to the square cans is the difficulty of getting honey out of them; and that, therefore, the dealer will not sell from them because of that fact. Why, my dear sir, square cans have honey gates the same as kegs and barrels; and the matter of convenience in retailing is, to my notion, far ahead of the leaky wooden things. Nearly all of the dealers' catalogs will be found to illustrate a very neat little honey-gate for square cans, costing fifteen cents, or mailed for three cents extra for postage. Every user of square cans should supply his grocer with one of these little gates; then the operation of drawing a pound, a quart, or a gallon, is as simple as putting up so much sugar.

Now let me suggest that you put your honey up in square cans again, and supply your grocers with these little gates; and if they don't ask you to bring the honey in future in such packages, then I shall miss my guess.

In regard to honey in tumblers, while it is true that this sort of package is more liable to be daubed than any other glass receptacle, yet all or nearly all of this daubiness may be avoided. Tumblers should not be filled any fuller than within a quarter of an inch of the top; and then the top should have inserted in it paraffine paper, which, when crowded down with a slight blow of the palm of the hand, will usually make a package almost honey-tight. To make it perfectly so, paste a red or yellow label around the edge of the cap.

It is true, there are self-sealing glass packages that will not drip or leak; but these cost so much more that the producer or dealer hesitates about paying the extra price.

Your idea of a syrup-pitcher is all right. We sold some a few years ago, but we had difficulty in closing out the stock. But if the scheme were worked right, pitchers of honey might sell very readily and easily. One trouble with a good many of the glass packages is that they have served their usefulness as soon as the honey is out of them, and that is one reason why the consumer hesitates about buying glass when he does not need it. But this objection does not hold against Mason jars or honey-tumblers as a rule. The one is useful for storing jelly, and the other for cooked fruit.—Ed.]

GRADING AND CLASSIFICATION OF COMB HONEY.

Simple Rules Preferable to those more Elaborate; Fewer Grades; Suggestions for the Philadelphia Convention; does Extracting have a Tendency to Make Honey Granulate?

BY WM. MUTH-RASMUSSEN.

For the benefit of those who may not be familiar with this subject, I will say that, in judging extracted honey, only the term "grading" is used, and applies to the color as well as to the body (specific gravity) and flavor of the honey, though, as a rule, in the general market it is the color that mainly governs the price. On the other hand, in judging comb honey the term "grading," by common consent, applies only to the filling, finish, and general appearance of the comb, and, to some extent, to the section or wooden frame within which it is built; while the word "classification" has reference to the color of the honey contained in the comb, or to the plant source from which it was gathered by the bees. In a general way the word "grading" includes "classification" as regards comb honey, as, for instance, where I further on, for want of a more distinctive term, speak about Niver's nine grades. But the word "classification" is never used instead of "grading."

I have just read your conversation with S. A. Niver in Aug. 1st number of Gleanings, and, previous to this, I had read all the published articles, discussions, and comments on grading as they appeared from time to time in your paper. I have tried to follow the grading rules, as agreed upon, as closely as possible. While it has given satisfaction to myself, and elicited commendation from my customers, yet many regard such close grading as unnecessary, and the dealers will, as a rule, not pay any thing extra for much distinction in grading, but prefer as few grades as possible. Look at the market quotations in the bee-papers, and you will find but two or three grades quoted instead of nine, as Niver would have it, or even more, by including "extra fancy" according to your notions.

A large firm in a city west of the Mississippi River has an agent here, buying up comb honey by the carload. They will have and pay for only two grades, which they call No. 1 and No. 2.

Though I have been so particular with the grading of my honey that I would not trust anybody else to do this work for me, still I do not see that I get any more for it than my neighbors who do not take so much pains. The "grading," however, is all right if sufficient latitude is allowed, as no two sections are ever exactly alike.

But even more important than grading is the *classification* of the honey by color. The grading only serves to please the eye more or less, but the color of the honey within the comb is the only means by which the buyer can judge of the quality of this honey until he has bought it and is at liberty to taste of it.

My honey-room has but a single window. When grading my honey I stand before this window, with the door closed behind me, and no light enters except through the window. Each section is held up to the light, and the color of the honey compared with that in several sample sections standing on top of the lower sash. As soon as the door is opened, and the light strikes that side of the section which faces into the room, the color of the honey can be seen only indistinctly.

I know bee-keepers who never look *through* a section in this way. They judge the honey merely by the outside appearance. If the capping is white they call it No. 1. If the capping is a little off in color, the section goes into the second grade. For that class of bee-keepers two grades are enough, and they ridicule the idea of going to any further trouble.

As a rule, honey is classed as "white,"

"amber," and "dark;" and sometimes or in some localities a class called "light amber" is allowed. You are, however, aware that there are a great many different shades of these respective colors, and, in classifying my honey, it has been one of the hardest tasks to decide into which class each particular section ought to go. Inclination says, "This is good enough to be classed as amber." Conscience answers, "If you were buying it you would call it dark." Reason says, "The public is not as discriminating as the producer; and while some might call it dark the majority would not know the difference, but would take it as amber." Here I stand between three advisers, each good in his way. Which one shall I follow?

When I lived in Southern California I sent a shipment of extracted white-sage honey to a commission house in San Francisco. According to my honest judgment this honey was white, though I knew it was not water white. On receiving returns I complained of the low price obtained for white honey. The commission man answered that the honey was amber. Well, he had the honey; it was, presumably, sold, and there was nothing left by which I could prove that I was right.

Now that the question of grading has received considerable attention, though not yet a settled matter, I think it would be just as important for the bee-keepers to have some fixed rules for classification. The grading can be taught to a certain extent by pictures in black and white, but not so the classification by color. A few years ago I requested you to send me samples of the darkest shades that would be allowed as white and amber. You did so, but stated that the samples were not exactly what you would prefer, but were as nearly right as you could select them from material on hand at the time. I see that your Mr. Boyden is making a collection of samples of different honeys, and I would suggest that he send his collection to the U. S. B. K. convention to be held in Philadelphia, and that everybody, if possible, who attends this convention, also bring samples of all the different shades and colors of honey that can be obtained. Then let this representative body of bee-keepers decide what shall be the darkest shade of white, light amber, and amber, allowable; also, if light amber is excluded, what separate shades of this color may be allowed as white, and which must go as amber. When the matter is decided, let the A. I. Root Company put up samples in small vials, inclosed in mailing-blocks, plainly marking each sample as darkest white, darkest light amber, or darkest amber, and offer these samples for sale at a nominal cost, so that every honey-producer, and, if possible, every honey-dealer, would desire to have a set of them. Then we should have a definite standard to judge by, which would obviate many disputes and much dissatisfaction in buying and selling our product. Give printed directions for liquefying the samples, particularly for the sake of dealers who may not know any thing about it. If possible, let representative honey-dealers have a voice in fixing the rules for classification. While there may be changes in the shape and dimensions of the section, and while the filling and finish of the comb are largely dependent on the honey-flow and on characteristics of individual colonies of bees, so that grading-rules can never be fixed with mathematical exactness, the classification by color, on the other hand, can be fixed within certain unchangeable limits if the bee-keepers will only agree upon them. It would be well done if the U. S. B. K. A. had such a set of standard samples, with which comparison could always be made by those who would furnish samples for sale to bee-keepers and dealers.

It will be understood that any honey of a darker shade than darkest amber goes into the class called dark. The color, as fixed by the classification rules, should, of course, apply equally to comb and extracted honey.

In preparing these samples the honey should, if possible, not be extracted, but dripped or pressed from new combs. *The process of extracting has a tendency to cause granulation.* Whether it is the churning or the exposure of the honey in very small particles to the air that causes granulation, the above statement is a fact which I have proved by the experience of many years. I have samples of liquid honey probably a dozen years old, pressed or dripped from the comb, standing in jelly-tumblers with loose tin covers, which show no sign of granulation yet. As the heating and re-heating of honey is liable to darken the color, this should be avoided, as far as possible, with the samples.

I hope that this subject may receive the earnest attention of the convention, and that we may soon have a set of classification rules that will be satisfactory to everybody.

Independence, Cal., Aug. 14.

[I think you misunderstand Mr. Niver if you think he is an advocate of *nine* different gradings. If there is any thing he tried to impress on your humble servant it was the importance of having a *few* grades, and the folly of trying to have an "extra fancy" and a "double-extra fancy;" and as a bee-keeper seldom markets more than one kind of honey at a time, his dealer or buyer will have only two grades to consider—No. 1 and fancy. But if the bee-keeper sends to market, all in one consignment, white, amber, and buckwheat, he might have nine grades; but this is the utmost possible limit, and is a rather extraordinary condition of things.

It might prove interesting and valuable to have samples showing the difference of colors in extracted honey. But one trouble would be that they would soon candy, and then when they were melted up the shade would be slightly darkened. We might have "colored cards" which, if they could be produced, could be sold as low as a cent apiece, or by the hundred at a much less price. I am not sure but that, if several grades of honey showing the representative shades were sent to a maker of printing-ink, he would be able to duplicate very closely those shades; then all that would have to be done would be to print cards from those inks showing each variation in color.

It has before been stated that honey that has been extracted, owing to the violent agitation during the process of separation from the comb, is more inclined to granulate than so much drip, "squshed," or strained honey; but when we remember that a great many *extracted* honeys will also remain clear and limpid for two years or more, we can hardly rely very much on such form of proof.—Ed.]

RAMBLE 173.

Mr. Griggs' Experience with Eggs.

BY RAMBLER.

"Why, how do you do, Mr. Griggs? It's a long time since I saw you. I guess you've moved from San Bernardino County."

"Wall, wall! is that you, Mr. Rambler? It does me good to see you again. Yes, I have moved down here near Pasadena. It must be that you have rambled a mighty lot since I saw you."

"Oh! I have taken a few steps north and south; but where do *you* live now, Mr. Griggs?"

"I live right up here near that schoolhouse. You see that house with a 'gabriel' roof? Got as nice a little place as you ever saw, and a nice apiary of forty colonies of bees. Come right along up and I will show you."

"*You* have an apiary? Well, I declare! and when I lived in San Bernardino County you were so tarnally afraid of bees — why, I have laughed more than forty times at the way you used to scoot for the brush whenever a bee would get within a rod of you. How did it happen that you took the bee-fever?"

"You know my wife My-nervy is very fond of honey, and she was bound to have bees and honey, whether I wanted them or not; but seeing that she'd got her mind sot on it I did not seriously object, for My-nervy is an awful good woman; and when we were married I promised to cherish and protect her; and I'll do it, if I have to put a cast-iron fence around her, and to deny that my soul is my own. Wall, My-nervy traded that big speckled Plymouth Rock rooster for a little swarm of bees that my neighbor's boy caught — don't remember that big rooster, hey? Why, you used to quote Shakespeare about his early strains, and tell My-nervy that he had such a dulcimer tone to his crow."

"Why, yes, Mr. Griggs; if you had said the dulcimer rooster I'd surely have remembered it. That was surely a good trade, and that is one reason, I think, why you did not object."

"Yes, I like a good bargain if I do get stung occasionally; but I find it just as you told me —the more I'd get stung the better I'd like it, or, rather, the less the effect would be; can't say, though, as I hanker much after stings yet."

"I see you stick to the poultry yet. I think you must have all varieties here — Plymouth Rocks, Leghorns, Langshans, etc. It's poultry galore."

"Hey? galore? No, don't believe I have any of that breed. Are they good layers? But then, I think we have enough varieties now; but if I think of it I'll speak to My-nervy about it; let's see—galore."

"I wouldn't spend much time looking for them, Mr. Griggs — hardly worth your time. And now, Mr. Griggs, I notice that your hens have access to the apiary, and seem to scratch quite a little around the hives. I'd like to know if your bees sting the black poultry more than they do the other colors."

"Be George! I never thought of it — never noticed; s'posed a bee never cared for color if it could get a chance to sting; but I'll ask My-nervy; she'll know all about it. My-nervy! hello there! I say, hello, My-nervy!"

"Yes, yes, I'll be there in a minute. Let me put these chicks in the brooder.

"Sakes alive! if this isn't the Rambler! I'm so glad to see you! Hiram and I have wondered and wondered what had become of you, and here you are, all of a sudden! just like you, for all the world. Walk right into the sitting-room and take a chair. Take the rocking-chair, Mr. Rambler. Now just make yourself at home."

"Thank you, Mrs. Griggs. I am quite comfortable—real glad to see you; still in the poultry business, and, strange to say, in the bee business too."

"Ha, ha! I knew you'd say so, seeing as how afraid of bees Hiram used to be. But I know Hiram pretty well. He didn't like hens, and he had a horror for ducks and geese; but now he takes just as much interest in them as I do. We are now selling $7.00 worth of eggs a week, with now and then a duck and a goose. All of these items help to pay for the place. I knew Hiram would soon get used to the bees. Then you see he sold $40.00 worth of honey the other day, and that was a great pacificator. Oh! my Hiram is a good man, if he *is* a little hard to manage sometimes."

"Say, My-nervy, Mr. Rambler wants to know if our white hens sting the black bees an —"

"For the land's sake, Hi —"

"Wall, now, I guess I *did* get the things mixed. So much poultry and bees and such things. Say, how is it, Mr. Rambler?"

"Why, Mrs. Griggs, I just wanted to know if your bees seem to sting black hens more than they do the white or the lighter-shaded hens."

"No, can't say as they do. It seems to me they take to yellow and to fuzzy chicks more than any thing else. A hen hatched out ten chicks under a hive in the middle of the yard; and when she led her chicks off between and in front of the hives one forenoon, there were just three came through alive, and they acted as though they had the blind staggers. No, I can't say as they like to sting black better than they do yellow; but we don't like to have the hens lay eggs under the hives, do we, Hiram? Ha, ha! Why, Hiram had a drefful time at church on that account."

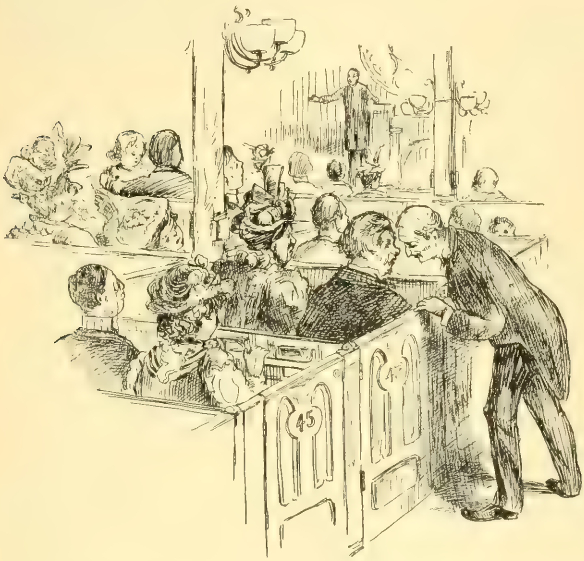
"Now, I am just curious to know what happened, Mr. Griggs. You didn't take a pocketful of bees to church with you, I hope?"

"No, Mr. Rambler, it was worse than that — worse than that."

"Now, My-nervy, I wish you'd keep still about that matter. You're always telling on me, and getting me into a pickleish feeling."

"You must tell it, Mr. Griggs; it may be a warning to me to keep out of a like pickle."

"Land's sake! I hope so. Wall, if you must have it, the pickle that I got into was this way: One Sunday morning, after I had hitched Billy to the wagon for going to church, and while waiting for My-nervy to see to her chicks, I thought I would look to a hive of bees that I thought would swarm soon. When I was fooling around the hive I saw a hen's nest under one of the hives, with two eggs in it. I picked them up to take them to the house, but some other things needed my attention, where I had to use both hands, and I put the eggs in my coat-tail pocket. Before I had gotten through with the hives, My-nervy was a shouting for me, and I just tumbled out of the yard and into the wagon, and never thought about the eggs in my pocket. We jogged along calmly until we had passed Deacon Scott's, when My-nervy, says she, 'Whew! Deacon Scott or some one has killed a skunk, I guess; anyway, there's something that smells strong.' It was just so when we arrived at the village. Something smelled strong there too. 'Yes,' said I, 'My-nervy, you think that every thing should smell as sweet as a camomile-bed. I suppose some of these folks have had onions for breakfast, and that is what you smell.'



"As I had a cold and a little catarrhal trouble, I could not smell any disagreeable odors. Wall, we were soon in church. Our pew is on one of the side aisles, but it ends up against Judge Grabbe's pew. The judge pays $15 more than I do for a pew, just because it is on the broad aisle, you know. My-nervy can sit right up against his pew, and get just as much of the gospel as the judge can, and at cheaper rates. The judge's wife is very haughty, and can scarcely notice us poor folks; but this time we seemed to attract her attention, and she seemed in a great fidget. The folks in front and the rear of us acted in the same way. The judge's wife got up and flounced out of the church. My-nervy became red in the face, and whispered to me, 'Hiram, something smells bad; that is what is the matter with them.'

"At the close of her remarks the people all arose to sing Greenland's Icy Mountains. I never like to be the center of so much attraction, and I wished that I was an icy mountain or a coral strand. As I was sweating over the matter the usher for our aisle had a confab with Deacon Sayles, and at its conclusion he came to me, and said, 'Mr. Griggs, something seems to be the matter with your pew. There is a strong odor here.'

"Says I, 'That is what Mynerva says; but I feel just as innocent of it as a spring chicken.'

"I was so awfully embarrassed and warm that I put my hand into my coat pocket for a handkerchief, and, blamed if I didn't run my hand into those eggs that I had put into my pocket and forgotten, and which had been crushed. Now, my My-nervy never throws away an egg as long as it will hold together. Even if she knows it is rotten she will save it and use it for a nest-egg, she is so saving of good eggs, you know. I had pocketed one of those rotten eggs, and that was the cause of all the odor and all the trouble. When I pulled my hand out of my pocket I contemplated the situation, and felt dismally small. My-nervy wrapped her hemstitched handkerchief around my decorated fingers, and we marched out of the church and went home, and we didn't go again for three months."

"Well, I suppose you laid it all to your wife."

"Not I, Mr. Rambler. I know that is quite a common way to do. There is neighbor Sharp. If he loses a plow-wrench out in a fifty-acre lot he will up and blame his wife for losing the wrench. No, sir; I have sworn to cherish and protect My-nervy; and even if she was to blame I'd take part of the blame and let the public know nothing about it."

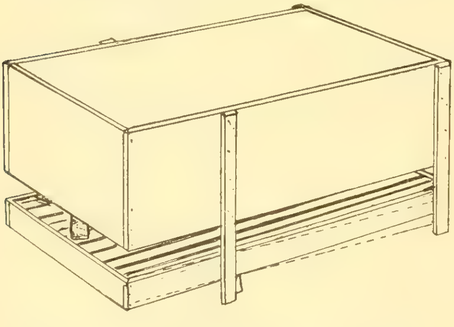
"But didn't the minister and the deacons say any thing to you about coming back to the church?"

"Yes, they were very anxious; and Deacon Sayles told us not to mind it — that it was an accident, and told us not to backslide for such a little thing as that. But we kept backsliding more and more, until we actually backslid over to the Methodist Church (you know we are Congregationalists). The people were all very kind, and called us brother and sister Griggs, and told me that their doors were wide open, even if I did carry eggs in my pocket. Then one of the sisters told my My-nervy that Judge Grabbe's wife had said she hoped the poultry-raisers would stay away from their church.

"I thought about this matter all the way home, and finally said I to My-nervy, 'If Judge Grabbe's wife thinks that way she is a greater backslider than we are, and it is our duty to return to the pew next to her, and set her an example of charity.' She acted as frigid as Greenland's icy mountains; but after I had taken her a few sections of honey, and apologized for taking rotten eggs to church in my pocket she has been one of our best friends. I shall remember the occurrence to my dying day. It is a disagreeable subject for me to talk about. Now you have heard it I want you to come out to the shop and I will show you my improved bee-feeder."

"I think, Mr. Griggs, that your bee fever must be lasting if you have got to inventing things."

"This is my automatic feeder. This box will hold about ten pounds. Under it is a shallow box having the usual divisions to keep the bees from drowning. You will observe that the support for this shallow box is a little off the center. The outlet from the upper box is in the bottom of the left end, and projects well to the bottom of the shallow box. In the bottom of the latter is a cork that fits the orifice from the upper box. Now fill the large box; the feed spurts through into the lower box until it is full; then the right end becoming heavier, the cork at the left end is thrown up against the inlet, and the liquid is cut off until the bees empty the lower box; then it fills again, and so it continues until the feed is all used up. It works so nicely that I have a notion to get it patented. My-nervy don't exactly agree with me. She has figured up how many dozen eggs it will take, and it worries her. Now, what do *you* think about it?"



"I have no doubt you can get a patent upon it, for it is quite an ingenious idea; but for all that I think your wife has a sensible view of the matter. Before you spend much money upon a patent it is well to look over the field and figure into the probable number that will be sold. In the case of bee-feeders you may have the best that was ever made; but they are limited in their use, and there are so many that are simple in construction that a bee-keeper will not spend much money for an elaborate feeder. Your chance for selling even enough to get your money back would be small. Put your money into poultry or bees, Mr. Griggs; they will pay you better than patents on bee-feeders. But I must be going, Mr. Griggs. I have had a very pleasant visit with you. I wish you success; and whatever you do, remember not to take rotten eggs with you to church. Any thing rotten is out of place in church."

ANSWERS TO SEASONABLE QUESTIONS BY G. M. DOOLITTLE

HOW MANY BEES FOR WINTERING.

Question.—You have given in GLEANINGS and the other bee-papers your plan of making nuclei and colonies of bees by shaking bees into the nucleus box. Now, what I wish you to tell us through GLEANINGS is, how many pounds of bees would you put into such a box, giving a queen, and the next day when hiving from the box giving frames of honey, to make a full colony to winter over?

Answer.—It is calculated, I believe, that there are about 5000 bees in a pound, where they are taken from the frames without filling themselves with honey; more than they naturally are when not disturbed. Then it is calculated that 20,000 bees make a good strong colony three weeks before swarming. But at swarming time there may be double this number, or more, so that where we work for comb honey on the non-swarming plan we usually calculate on from 40,000 to 50,000 bees as making a good strong colony for working in sections to the best advantage. But my opinion is that more colonies go into winter quarters, which are called strong, with from 12,000 to 15,000 bees, than there are that contain a larger number. Then I always cause the bees to fill themselves with honey before putting them into the nucleus-box; and from considerable experience, by way of experimenting, I am quite certain that the pound of bees taken from the combs in the way they should be to have 5000 in a pound would weigh fully two pounds when filled with honey the way I cause them to fill themselves. Hence, if we call 12,000 to 15,000 bees the right number for a colony good enough to winter the most successfully, we shall want those in our nucleus-box to weigh from five to six pounds, which is about the number of pounds I take when forming a colony for winter, from several others.

Unless your bees breed late in the fall I would not take more than two pounds from any one colony, for fear I might make them too weak for wintering to the best advantage.

It surely can not be advantageous to make a new colony where the making of such colony injures the successful wintering of two or three others. People become reckless, especially beginners, and think that number of colonies makes success, no matter how weak they are; but from all of my experience in the past, Quinby's advice, given nearly half a century ago, which read, "Keep your colonies *strong*," was the best advice ever given to beginners in apiculture. So if you can not make a colony, or colonies, this fall without injuring the prospect of those from which you take the bees, *don't make the colonies.* In localities where bees breed during the month of September, and where a queen is given to the made colony when it is made, as is proposed, one-half the bees, or from two and one-half to three pounds, will do fully as well as the five or six pounds would where no brood was reared after the colony was made. Then, again, if the person making such colonies had the time and means to feed moderately during the month of September, three pounds would do well enough; for by thus feeding, brood would be reared during the month of September in almost any part of the United States. Where one has the time, and can afford to buy the sugar, there is nothing in the bee business that gives greater pleasure than building up colonies of bees ready for winter during the fall. After they have been fed from five days to a week, brood-rearing will commence in earnest; and if you do not have all the combs you wish for these colonies, they will draw out foundation in the most beautiful manner for the person who is willing to work along these lines in the right manner. But a half-hearted slipshod person had better not undertake such matters, for he will only make a failure of it.

UNITING IN THE BROOD FORM.

Question.—As you have recommended in the bee-papers uniting bees in the brood-form (I think the latter part of August and first weeks of September), will you please tell us in GLEANINGS how many Langstroth frames of brood would form a colony that would be strong enough for wintering, where left on the summer stand, they to be fed up as soon as all brood has emerged from their cells?

Answer.—Uniting brood, or bees in the brood form, is better done during August, though it can be done as late as Sept. 10 to 15th, if brood enough is put together at the latter date. Early in August, three frames which are quite well filled with brood will do very well for this locality; and further south, or where bees breed up to October, two would do, providing the hives are filled with empty combs or frames filled with foundation. Of course, these combs of brood and bees are to have a queen with them, for the bees which are carried with them will not stay where put unless there is a queen with them, or some other precaution is taken. And, having a queen, she will, of course, go right on laying, so that by October you will have quite a strong colony where two frames are used. But if you are not too anxious for increase, three frames are better than the two. The latter part of August you should have at least four frames, from half to two-thirds full of brood, and in each case the queen should go on one of the frames, and the adhering bees on all of them. By alternating the frames from different hives no quarreling will result, and the mixing of the bees causes them to mark their location anew; and to a greater extent where the colony is formed just at night, so that but few will return to their old location. If this uniting of brood is to be done as late as the middle of September, then I should want at least six frames having brood in them. I have made many colonies the first week in September by taking five to six frames of brood, taking the same from as many nuclei which I had used during the summer for queen-rearing, and taking the queen from one of the nuclei on the frame of bees from her little colony, setting the whole six in an empty hive placed where I wished a colony to stand, when I gave four full frames of honey, putting said honey all on one side of the hive, so that, during winter, the bees would not eat their way to one end, and starve with two frames of honey on the other side of the hive, and had the colonies thus formed make the very best for honey-gathering the next year. The mixing of bees, and the giving of this honey, caused the queen to lay nicely for about a week, and the bees from these eggs added strength to those from the brood that was in the frames when united. If neither you nor any other person has ever done any such uniting, it is always well to "go slow" till you are perfectly familiar with the workings of the matter, when you can "venture out with confidence."

HEADS OF GRAIN FROM DIFFERENT FIELDS

WHY NECTAR DID NOT SECRETE FROM THE FLOWERS; BUILDING SIDEWALKS IN FLORIDA.

I've been endeavoring all summer to solve the problem why there was no honey secreted in the flowers. There have been all sorts of weather — hot days and nights, cool days and nights, dry weather and wet, yet, all the same, nectar was wanting. I've looked at plots of white clover, white as snow, yet I could not discover one bee humming over the blossoms. Sweet clover, white and yellow, had been luxuriant, yet seldom has a bee been seen working upon either. The reason is an unknown quantity to me.

In a recent drive I noticed one reason why our bee-pasture is less. Formerly the gardeners did not use their ground as they do now. At this season of the year, where their early vegetables and potatoes had been raised it would be waving like waves of the sea with polygonum, Spanish needles, and other fall flowers that yield nectar. Cornfields, with the improved implements of culture, are also destitute of these plants. Low lands along the river are being leveed and drained; and where the plow and the reaper go, the bees have to take a back seat.

Bees have been very erratic this season. They will swarm, cluster, be hived, and then return to their old home; repeat it again the next day, and finally settle down in their old home.

We may expect a fall flow of honey, judging from the amount of rain that has fallen; but if what the Germans say is true, it will be a failure. They say bees will not work where grasshoppers have been; and they were never more plentiful than now. Great big yellow fellows are eating buds and blossoms, and ears of corn; we only regret that we have not chickens enough to eat them.

One good thing about bee culture — if bees have an off year we can do something else — amuse ourselves in some other line of industry.

Mr. Editor, I like your homely talks. The one in last GLEANINGS about good roads pleased me exceedingly. I've had some experience in building sidewalks in Florida; and the best way is to arise and build, as they did the walls of Jerusalem. I know those who refuse to help in any such improvement are very apt to use it the most. They refuse to aid in buying lumber for a walk; yet when it is finished they trundle heavy wheelbarrows over it, breaking it down.

Peoria, Ill. MRS. L. HARRISON.

DANZENBAKER VS. NIVER ON THE KIND OF HONEY THAT SELLS; IS THERE MORE HONEY IN 15 CENT SECTIONS THAN IN 10 CENT ONES?

I dissent from the idea set forth on page 570, that three sections like the middle one can be produced for one at the right, with plain sections and fences, with proper management; and I venture that J. E. Crane, M. H. Mendleson, N. D. West, Vernon Burt, and hosts of others will sustain me. If supers are as warm as they should be in a full flow of white honey in June weather, at least half the sections should grade No. 1 when the rest grade No. 2, either of which will bring from 10 to 13 cts. wholesale.

It is rather discouraging to think of retailing even No. 2 sections for 10 cts.; but it may be all that black buckwheat honey is worth; but if it is retailed for 10 cts., there can not be much for the producer's pocket after the supply-dealer, railroad freights, carting, and commissions are paid.

We know that buckwheat yields little or no honey in hot weather. In cool latitudes, where it yields surplus during cool days and chilling nights, it may not be possible with ordinary hives to have the supers warm enough to have combs drawn out, and the honey cured fit to seal at the sides of the sections to grade as No. 1; and the buckwheaters are obliged to make only No. 2 or none, and sell it for 10 cts., as it is all it is worth. But the most of us are happy to know we are not raising comb honey yet to be retailed for 10 cts.

The bulk of the 4 × 5 plain sections raised by myself, and others that I have seen, will grade No. 1, and we get all the bees make and ought to spare. Our chief concern is to know that they have not put so much in the sections as to be short of winter stores.

F. DANZENBAKER.

Washington, D. C., Aug. 10.

THAT "GOOD CATCH."

O Mr. Editor!—What won't you ask of us next? But why *hold* them on? They'll stay without if they care to. But I don't see that I nor any other "young lady of prepossessing appearance" *could* succeed in holding a swarm of bees on a limb if they wished to leave. And should the swarm think the lady intrusive, and try to discountenance her, what assurance is there that the "$10" with all the "grace that one of her sex has" would enable her to still "have about her an unconscious air of ease," while painfully conscious of the disaster to her "prepossessing appearance"? I've the bees, but I'll not send in my picture. E. L. MORE.

So. Cal., Aug. 1.

WAXING RUBBER RINGS TO PREVENT HONEY LEAKING; HOW TO WAX THE RINGS.

I am so confident, Dr. Miller, that waxing rubber rings will prevent leakage in your locality or in any other that I will forfeit $500 to the U. S. B. K. U. if it will not, and will sign a legal agreement to that effect. There is no kink about it, except what I fully explained in the article describing the plan.

From what you say about the wax flaking off, I think perhaps you did not have the wax hot enough. It should be boiling, and the rings just dipped in and instantly withdrawn; then there will not enough wax adhere to them to flake off; in fact, you will have to look close to observe any wax on them. It is true that, in screwing the cover down tight, some wax will be forced out of the pores in the rubber; but enough remains to prevent the least trace of leakage — that, is if the jar seals air-tight in the first place.

Southern Minn. C. DAVENPORT.

"EXTRA FANCY" A SUPERFLUOUS GRADE.

I have read two or three times lately in GLEANINGS about *extra* fancy comb honey, and now some commission man has taken it up and gives quotations for it in the last issue. Now, I am afraid this will work to the disadvantage of the producers of comb honey, and the commission men will make an extra profit out of it; for will not that extra fancy bring the price that was formerly obtained for No. 1, and our No. 1 then be looked upon and priced as our No. 2 used to be? Not one beekeeper in 500, may be, will have a few sections of extra fancy; and while he *may* get a little more for it I am afraid it will tend to lower the prices all along the line. After a while we may hear of "*super* extra fancy," or some such name, and I would not object to it if the price would go up with the names; but past experience points the other way. Excuse me for criticising; but I feel that it is a matter of importance to us all.

The honey crop in this part of Wisconsin is very short. We had very bad, rainy, foggy, and cool weather in basswood time, and white clover did not yield any honey, hardly.

[The following private note we think of enough importance to add to the foregoing, even though the writer requests that it be not published. We leave off postoffice and name for this reason.—ED.]

I wish to add to the above, that I have been led to write as I did by a fact that was brought out in our convention last February. At that time, fancy comb was quoted by a commission firm at 13 cts.; and one of our members who had been down three or four days before was told by the same firm that they sold at 15. It is a matter of fact that we never get from commission men a price higher than quotations. As a rule it is nearly always below. Now we are regularly charged 10 per cent commission; 2 cents make over 15 per cent; and when it comes to giving ¼ of our crop just to have it sold, it is enough to overtax the patience of a saint, and bee-keepers are not all saints, whatever commission men may be.

My own experience corroborates the above, for last fall I *sold* to the same firm some comb honey for which they received 13 cts. by their own acknowledgment, and they complained terribly of the lot, as it was not built out to the wood, etc.; and by their own quotations it would not have brought more than 10 cts. in Chicago.

A GOOD FLOW OF HONEY.

[After receiving the foregoing the following came to hand, and is right in line with what has already been said in the matter of the superfluousness of the "extra-fancy" grade. —ED.]

We are getting a good flow of honey here, and have for four weeks past. I, as well as my neighbors, extract every two weeks from L. hives well filled and sealed. We have, up to date, shipped three cars, and have another almost ready. The quality this season seems to be better than usual. It is not white, but I quote it extra light amber. It is of good flavor and heavy body, gathered from alfalfa.

Guernsey, Cal., July 28. F. E. BROWN.

BEES AND BLACK CHICKENS.

Having read in GLEANINGS about bees and black clothes, I will give my experience with bees and black chickens. While working among the bees I noticed a commotion among the chickens, and found that three little black fellows were completely surrounded by bees, while they paid no attention to the white ones. I caught them and found that they were full of stings. There were stings in the corners of their eyes, which I pulled out, and bathed with witch hazel the parts stung. They acted dumpy for a day or two, but are all right now.

Sharon, Ct., July 24. FRANK C. HARRIS.

THE FAMOUS CATCLAW HONEY OF TEXAS.

I send you a photo of myself wiring the famous catclaw shrub, or bush, in bloom, from which we make our best honey. I send you to-day by express a 12-lb. crate of new honey from this plant. Please sample the same and tell in GLEANINGS how it compares with your best Northern honey. The photo also shows the cactus and mesquite. Both of them yield a fine honey, but not yet in bloom—just budding. These come right on the heels of catclaw, and sometimes almost together, and there is very little difference in the quality of honey.

This crate of 12 sections was made in 24-lb. supers without separators, and just taken as it came. Of course, it may not grade A 1, as to perfectness; but tell us what you think of the flavor and quality of the honey. Only starters were used in sections.

Fairview, Tex., May 6. G. F. DAVIDSON.

[The 12 pound crate of honey came duly to hand, but a portion of the comb was broken; but there was enough of it in perfect condition to show that it was of very fine quality, and would rank with the very best of white honey from the North.

This particular honey, if I remember correctly, had a very delicate, pleasant flavor, somewhat suggestive of the smell of the lilac in early spring, in the North; and if Mr. Davidson or other bee-keepers of the South have very much of this honey it ought to be classed as white honey, and run an even race in price.—ED.]

POISONED BROOD.

I lost one entire brood-chamber or 30 days' work for the queen by the young brood dying with something like paralysis within 24 hours after hatching—a new thing to me; and, being a tenderfoot in Texas, I set out inquiring, and found it new all around. Some said it was poisoned pollen or sour pollen; others, poisoned honey. On close examination I found nine had no pollen. I went to feeding rye flour and oatmeal dampened in sun-extracted honey. They stopped dying, went to capping brood, which they had refused to do before. I have taken some memoranda from observation of the actions of the bees during the death-siege, as it is different from any thing else I ever saw. If you have any desire for information I will give it as best I can. Of course, it differs from every thing here. I claim it was a want of pollen causing paralysis, as there is no poisonous plant here. The bees were full grown, well developed, etc., when hatched. J. M. MCCURDY.

Sabinal, Tex., July 21.

[Notwithstanding what you say, I am strongly inclined to believe that the brood you refer to was poisoned by honey or pollen that would not have affected adult bees.—ED.]

The following question was discussed at the Texas meeting: "Is it advisable to use unmated queens for drone-mothers?"

Hutto, Tex., July 26. H. H. HYDE.

[I don't know, but I should think not.—ED.]

EDITORIAL BY E. R. ROOT

HONEY NOT ADVANCING, AND WHY.

HONEY is beginning to find its way into the markets. Prices are not "bearing up" as we hoped; and the reason is, commission houses and honey-buyers, many of them, are offering little if any better prices than ruled in 1897, when there was a large supply of honey. But one, two, or three houses can't advance unless *all* do. As I pointed out in our last issue, when prices are moving upward on every thing else there should be a corresponding rise on honey; and if our commission men can give us a little substantial support we may look for an improvement in general prices. In the mean time, bee-keepers should send only to reliable firms. It is the irresponsible cheap Johns — inexperienced, unknown concerns — that move off the honey at any price for the sake of making it move quick. It is also the firms who are responsible, but who do not make a specialty of honey, and dislike to handle it any way, and because of that dislike sell the "messy stuff" at any figure, "to get rid of it," that help to "bear down" the market.

THE BIG CONVENTION IN PHILADELPHIA, SEPT. 5, 6, 7.

THE United States Bee-keepers' Association will hold its convention in Franklin Institute, 15 South Seventh St., between Market and Chestnut Sts. An excellent program has been prepared; and in view of the very low railroad rates guaranteed to the G. A. R., there is no doubt there will be a large attendance. GLEANINGS will be represented by two of the Roots — A. I. and E. R. The latter expect to leave Cleveland on the 4th for Philadelphia, probably taking an afternoon train. We are aranging for W. Z. Hutchinson to meet us at that point so we can travel together to the big convention. As also observed in Pickings, the editor of the *American Bee Journal* and Dr. C. C. Miller will also go, besides hosts of other bee-keepers of national reputation.

One of the important problems to be tackled is the adulteration evil; and there should be a large attendance as well as a large enrollment, for it takes dollars to hire lawyers and fight adulteration. Now that the Association has begun to make the mixers in that great city of Chicago "quake in their boots," it is time to follow up our advantage, and that right speedily. The only bar in the way will be the question of money. It will take only a dollar from each member, and that dollar will secure to that member various privileges besides the protection it affords against the mixers of glucose. It must not be understood that a few members are going to fight all the battles, for they simply can not. Unless bee-keepers generally take hold, very little will be accomplished.

The great generals of the war realized that when, having secured a slight advantage, it was necessary to follow it up immediately. We have obtained quite an advantage already in a little preliminary fight against the adulterators in Chicago. Let us follow it up in a good substantial manner.

"THAT GOOD CATCH," AND WHO SECURED THE FIRST PRIZE.

WE received quite a number of photos and one wash-drawing, showing a young lady holding a swarm of bees just as she is about to hive them. After all the entries were closed, Aug. 15, there came another photo from another party, J. O. Sheman, that might have secured the first position; but in fairness to the other contestants the prize had to be awarded to one of the number who sent pictures before the date named. W. Z. Hutchinson has secured the first prize, $10.00, and his picture, accordingly, will appear in the frontispiece of the A B C book. The second prizes we have as yet hardly decided to whom they shall be given. There are several good ones in the lot, and we shall give to perhaps two or three of them $5.00, thus placing them all on a level so far as merit is concerned. One and perhaps two of them will be used to adorn the honey-leaflet that we expect to get out, showing the industry from A to Z, and in such form that the average consumer can take in at a glance just how honest honey is produced, and how it is finally landed on the market.

These "good catch" pictures will be shown in GLEANINGS in due course of time, and I think our readers will all agree with me that the daughters of bee-keepers are exceptionally good-looking. I do not know the names of more than one of them, at least, and that one, of course, will not be given.

VICTORY THROUGH DEFEAT; HOW THE ASSOCIATION HAS SCARED THE ADULTERATORS IN CHICAGO.

WHEN the U. S. B. K. A. met at Omaha last, the executive officers of the Association held a conference to determine upon a policy to be pursued with reference to adulteration. The result of the conference was that General Manager Secor was instructed to proceed against the glucose-mixers in such manner and such place as he deemed best. Nothing was said about the matter at the time in the bee-journals, as it seemed wise to keep it quiet till such time as actual suits were begun, arrests made, and convictions or acquittals secured.

As will be seen, the Association commenced operations in that hotbed of adulteration, Chicago; and although we have met with temporary defeat, that defeat seems to be really a victory. Here is what is said in the *American Bee Journal*, an advance proof of which was kindly furnished me by the editor:

> It will be news to practically all of our readers when we announce that an attempt was made awhile ago to stop the sale of adulterated honey in this city.
>
> The latter part of last April, upon receipt of instructions from the United States Bee-keepers' Association to go ahead in the honey-adulteration cases, Attorney Herman F. Moore (who was employed by the Association) and the editor of the *American Bee Journal*

proceeded at once to collect samples of suspicious honey for purposes of prosecution. Nine samples were selected from the dozen or more procured, on recommendation of Chemist E. N. Eaton, as being clearly adulterated with glucose.

Out of the nine, five were taken, and a complete chemical analysis made for use in court. Upon the advice of the State's attorney's office, the cases were to be taken before a justice of the peace, and Justice W. T. Hall was selected. Assistant State's Attorney Fred L. Fake was detailed to assist Mr. Moore in preparing the evidence and conducting the trials, the intention being to try one case at a time, and follow up with the remaining four if successful in the first.

Acting on the suggestions from the State's attorney's office, criminal proceedings were begun July 1 against Nelson N. Blood, 448 W. Lake St., the complaint being made by the editor of the *American Bee Journal*, who, accompanied by Mr. Moore, had purchased the alleged honey from Mr. Blood himself.

July 3 Mr. Blood was arrested, and gave bonds in $200 for his appearance July 10 for trial.

July 10 the case of the People vs. Blood came up for trial, and testimony was given by the writer, Mr. Moore, and Chemist Eaton, for the people, and by Mr. Blood in his own defense. The latter testified that he did not know it was not honey; that he had bought it from Weber Bros. (wholesale grocers), who had sold it to him for honey; that he did not know any thing about it.

The case was continued for evidence and argument several times. In the meantime Mr. Moore and the writer called on Weber Bros., and subpœnaed Chas. Weber, after questioning him closely. The subpœna ordered him to produce in court the records, books, papers, and bills relating to his last three sales of honey to Mr. Blood previous to June 4, 1899, being the next day after we purchased the jar of so-called honey at Mr. Blood's store. On the further hearing, Mr. Weber testified that he had tasted the stuff, and considered it good honey; that he had purchased it from Randall & Co., a commission firm on South Water Street. All of Mr. Weber's testimony indicated that he was working in the interest of his customer (Mr. Blood), so nothing of value was gained from him that would aid us — except, possibly, that we learned who did the adulterating.

July 20 the arguments were completed, and Justice Hall made his decision, discharging the prisoner. This was indeed discouraging to the prosecution, as we all (including the State's attorney) felt that under the law we had clearly earned a favorable judgment, and according to the facts as presented in the case. How Justice Hall could render such a decision, in view of the evidence and the law, was, and is yet, a great surprise to us.

The turning-point possibly was this: The law says, "No man shall be punished who shows to the court or jury that he could not with *reasonable diligence* have known that he was violating the law." Mr. Blood did not testify that he even *tasted* the stuff he sold for honey. He testified to *nothing else* that showed *diligence*, small or great. He showed *no* diligence. The law requires *reasonable diligence*. But Justice Hall seemed not to take any notice of this feature of the law, though he expressed himself, when invited to taste the stuff bought from Blood for honey, that he had no doubt it was bogus.

Now, while it would appear that the United States Bee keepers' Association met with a rather discouraging defeat in its first attempt to enforce an anti-adulteration law, we are not sure but a good deal was gained for the cause of pure honey in Chicago, after all. Before Justice Hall rendered his final decision it was noticed that the honey adulterators had wisely taken the hint, and there appeared the additional word "Imitation" on the labels of their mixture of a good deal of glucose with a little honey, thus correctly renaming it "Imitation Honey."

Besides the above advantage gained, we think the adulterators will not find such a great demand for their compound hereafter, as the consuming public were made aware of the prevalence of the bogus article through the notices in the newspapers of the attempt to enforce the anti-adulteration law of Illinois.

It seems hard to understand, in view of all the facts presented, how Justice Hall could have discharged the defendant, for it appears that there was no question at all about the honey being adulterated, nor as to whether Mr. Blood sold that honey or not; and to any bee-keeper, at least, it would seem that the defendant did not in any sense use any "reasonable diligence."

The case made quite a stir in the Chicago papers — so much so that the adulterators of honey have been badly scared, and well they may be. If I am not very much mistaken, the Association will recommend going right ahead. In the next suit, in all probability, conviction will be secured, and the culprit will get a notoriety that will be any thing but pleasant or profitable.

The fact that the adulterators are beginning to mark their packages "Imitation" appears to be a most substantial victory, for the Association has accomplished through its officers something of which it may be proud; for no consumer will knowingly buy such vile stuff, labeled or marked "Imitation."

The Association can not afford to stop at this stage of the game, and it will not, I verily believe. If one little prosecution like this, resulting in apparent defeat, has accomplished such good results as this I believe bee-keepers will rise up in their might and fairly pour their dollars into the Association treasury for the express purpose of giving the adulterators a few more rounds.

That the wholesale firm which furnished Mr. Blood with the stuff has already taken a wholesome warning, is evidenced by a letter which they wrote to their salesmen, and which Editor York was able to secure. Here it is:

> Chicago, July 10, 1899.
>
> PURE FOODS.—We believe the tendency of the buying public in the future will be in the direction of strictly pure foods — and in our opinion the result of this will undoubtedly prove highly beneficial to the health of the consuming public, and unquestionably more satisfactory to the jobber, retailer, and everybody concerned in selling this quality of goods. Adulterated articles in the food line are still on the market, ... but we believe it will be to the best interests of all concerned to advocate the purchase of pure foods as speedily as possible. Unless you know it to be a positive fact that the article you are selling is absolutely pure, do not sell it as such. If you are in doubt, make it known that way. WEBER BROS.

If this is not good anti-adulteration doctrine, I do not know what is. The presumption is that a number of other firms will come to the same conclusion — especially so after one or two *more* cases have begun, which there undoubtedly will be.

Hurrah for the Association! Give it your support with your dollars.

BEES, BIRDS, AND GRAPES.

NEARLY every year about this time the bee-keepers are met with complaints from their neighbors about how the bees are eating up their grapes. It has been pretty well established that bees never touch the sound fruit; and until within a year or so it was supposed by all fruit-growers, and even by some bee-keepers, that bees made a small round puncture through the skin of some soft grapes like the Niagara, and even pierced the more hardy Concords. But two years ago we were successful in finding the real culprit, and that was in the form of a little bird, quick of flight, scarcely if ever to be seen around the vines when any human being was present. This bird, about the size of a sparrow, striped, and called the Cape May warbler (*Dendroica tigrina*), has a long sharp needle-like beak. It will alight on a bunch, and about as fast as one can count the grapes will puncture berry after berry. After his birdship has done his mischief he leaves, and then come on innocent bees to finish the work of destruction by sucking the juices of the pulp of the berry, finally leaving it dry and withered up. While the birds are scarcely ever "caught in the act," the bees, ever present during all the hours of daylight, receive all the credit for the mischief.

Grapes broken in handling will be visited by bees independently of any tampering on the part of the feathered tribe; and at such times bees do very often prove to be quite a nuisance; but it may be said, on the other hand, that broken grapes are unsalable anyhow, and therefore this damage is slight if any, and the real mischief or harm done is simply the annoyance caused by the fear of being stung while handling over the bunches in the basket. For particulars in regard to this grape-puncturing bird and its habits, see pages 790, 827, for 1896, and page 22 for 1897.

ROBBING BEE-KEEPERS.

In our issue for July 1 appeared the following advertisement:

> WANTED.—To introduce my golden Italian and Carniolan queens into your apiaries. Price, tested, 50 cts.; untested, 35 cts. Satisfaction guaranteed.
> F. T. LUPTOM, Warners, N. Y.

This advertisement was received in my absence or it would not have been accepted, on account of the exceedingly low price, and also because of "golden Italians," "Carniolans," etc. Our people here noticed the low price, but sent at once for samples of his queens, and, of course, the samples were very satisfactory, and the man wrote as if he were honest and straight. He wrote about having queens killed by leaving the cages outdoors right in the hot sun, and asked questions as if he were a beginner.

Not very long after the advertisement appeared we began to receive complaints, and our good friend Paltridge sent us a communication which he had received from the postmaster at Warners, which reads as follows:

> Stephen Paltridge, Ardonia, N. Y.
>
> *Dear Sir:*—F. T. Luptom does not live here. He comes about twice a month and gets his money on money orders. His letters are forwarded to Syracuse, N. Y. DUANE LA DU, Postmaster.
>
> Warners, N. Y., Aug. 9.

On receipt of this last I knew at once we were swindled, and wrote to the postmaster, requesting to have all mail for Luptom stopped as quickly as possible. I also wrote to the manager of our branch house at Syracuse, Mr. F. A. Salisbury, in regard to the matter, and it is largely due to his untiring energy and push in the matter that Luptom was not only pretty soon hunted up but landed in the lockup. We have thought best to submit to our readers the following, clipped from a Syracuse paper:

> Postoffice Inspector Kyle was notified, and went to work on the case. He learned from the postmaster at Warners, that on July 15 a young man about 22 years old had money orders cashed there to the amount of a little over $15, and secured two registered letters containing 50 cents each. He gave his name as Luptom, and left orders to have all future mail forwarded to Syracuse. At this postoffice he ordered his mail sent to Locke, Cayuga County.
>
> Last Thursday Inspector Kyle went to Locke and found that mail to the amount of seventy letters was waiting for Luptom, and had not been called for. From advices received it was learned that they contain money orders to the amount of $16 or $18. Payment on these has been stopped, and under the ruling of the postoffice they will be returned to the offices from which they are sent, and repaid to the remitters.
>
> There being no calls for Luptom's mail at Locke, it was difficult to locate him. The most interesting part of the story is the manner in which he was caught.
>
> Yesterday afternoon F. A. Salisbury, who keeps bee supplies at No. 1635 West Genesee St., went to Inspector Kyle's office in the Postoffice Building and said that he was the agent for GLEANINGS, and wanted to know if something could not be done to head off Luptom. He said that that afternoon a young man with a smooth face had walked into his store and asked him if he knew any thing about this Luptom who advertised queen-bees so cheap. He said his father had sent him some orders, and never heard from the money.
>
> Mr. Kyle questioned Mr. Salisbury closely as to the man's appearance, and found that it tallied exactly with that given to him by the Postmaster at Warners and by Adam Metzger, general delivery clerk of this city. The fellow had told Salisbury his name, and that he worked for Charles Mills, of Fairmount.
>
> Mr. Kyle, accompanied by United States Deputy Marshal Spaulding and Adam Metzger, drove out to the Mills farm and found the young man sitting outside stemming elderberries at 5:30 o'clock. Kyle immediately accused him of the crime, and the lad turned pale and made a complete confession.
>
> The young man was arrested, and brought to this city.

We are fortunate this time that no great amount of money was invested or required. There is a great moral to it, however. It ought to impress every young man — yes, and old man too, for that matter — that to succeed in the swindling business requires a great amount of very hard work; in fact, one can go to work at almost any thing and make more money honestly than he can get, even if he succeeds in his dishonesty; and, besides, the way things are managed nowadays, no matter how ingeniously the guilty one lays his plots, he is pretty sure to be caught in a very little time.

Later:—To-day, August 28, we have just received a letter from the young man who called himself Luptom (admitting that Luptom is not his name), begging piteously not to have his real name appear in GLEANINGS, and promising to send queens to all who have lost their money, from some reliable breeder. There is just one thing in his letter that does not sound honest. He says: "I am the victim of foul play." Now, the man who takes an assumed name, and has his mail sent around to different offices, as in the above newspaper statement, is, I should say, the "victim" of his own rascality, instead of foul play on the part of some one else. I have written him that, if he will return all money that he has secured by his swindling scheme, we will keep his real name out of print. Unless he does this we shall show him up as he deserves. If he does not make good those who have lost by sending him money in response to an advertisement in GLEANINGS we will try to make it good ourselves. He requests us to send him a list of those who have sent him money and received nothing. A. I. R.

OUR HOMES,

BY A. I. ROOT.

Let us make man in our image, in our likeness.—GEN. 1:26.

In the Declaration of Independence of the United States there is a clause that has often impressed me. It says, "All men are endowed by their Creator with certain unalienable rights: among these are life, liberty, and the pursuit of happiness." The great Father certainly had in view that man should take a very high position in the universe. He planned that he should not only do a great work of some sort, but I think he also intended that he should enjoy himself and be happy; and the framers of the Declaration also seem to have had a very high conception as to what mankind should be, or, if you choose, as to what the people of the United States should be. Not only are they to do a great and good work, but it is to be their privilege to seek happiness—to have "fun," as the boys would express it, and enjoy themselves. There are some of us whose lives are so busy that we hardly dare think of stopping to play and have fun. There are certain overworked women — may God help them when their eyes scan these pages — yes, may God help them to find just a *little* time once or twice in a year, if not oftener, to take a holiday, and possibly to go on a picnic excursion. It is right, and I am sure God intended we should have some play, every one of us, even the gray-haired men and women as well as the juveniles and the boys and the girls. A great many times I feel as if I had no sort of business to take a holiday at all, nor even to stop and have fun, as there are so many things that ought to be doing, and others that ought to be *done* every day in the year.

I have just been making some rather severe criticisms on Sunday excursions, and some of you may have received the idea that I am down on excursions of *all* sorts. God forbid! I well remember the time when the talk of a Sunday-school picnic almost set me wild. Yes, I can remember, too, when the thought of the Fourth of July prompted me to swing my ragged straw hat, and almost make myself hoarse shouting "Hurrah, boys!" And I have not got over it yet; in fact, I sometimes think that, after one gets to be about sixty years old, he should be a boy *again*, for at least a considerable part of the time. Yes, I believe in *excursions*. Of course, there may be too many of them, and I have sometimes thought our people were just now having *more* excursions than they really need. They cost quite a little money; and if we do *not* have them on Sunday there is a loss of time that every one can not well afford. I have recently attended two excursions. A year ago the employees of our factory and the business men of Medina united in having an excursion together; but somehow or other Satan got his finger into the picnic, or rather, perhaps, before and after the picnic, and there was some unpleasantness; so this year they decided to have two picnics, with only a short interval between them. One of them was at a place where I should not have chosen to go; but a great many times in these lives of ours I think it wiser to join in with the crowd, and go along with the crowd, than to hurt people's feelings by making a fuss about things that are not *exactly* as one would have them. You know what I mean, friends; and I wish you to please keep in mind what I mean, in what I am going to say about this excursion to a modern fashionable picnic-ground. One of the finest attractions the place afforded was a beautiful bathing-ground on the shores of Lake Erie. The locality was all clean white sand — so clean you could sit down anywhere with your Sunday clothes on, and the children could roll and tumble in the soft warm sand without soiling their clean clothes a particle. Then they could roll and tumble in the water warmed by the August sun, to their hearts' content; and, in fact, a great part of them did roll and tumble in the beautiful clean water pretty much all day. In fact, whole families — father and mother, and all the boys and girls and juveniles, with proper bathing-suits, were thoroughly washed, and washed *clean* for at least *once* in their lives if not more.

I soon discovered that this same clean white sand, right at the water's edge, was an ideal place for running a wheel. My wheel was with me, and I rode along the beach until I was tired, and then had a delicious nap in a heap of soft warm sand, my head pillowed on my wheel. Then I got up and wheeled again, and I went so far away that I could neither hear the shouting of the bathers nor see their forms in the distance. If I went too far away from the water's edge the sand was too soft, and my wheel would slip; while if I went too close, the white caps would break over me and make the wheel spatter my clothing. But the water was so clean and pure it left no trace. Oh how I *did* enjoy that wheelride, with the strong breeze right from off across the water giving me strength and inspiration! As I was away off alone I could utter praises out loud, and give vent to the exuberance of my spirits. I said, "O Lord, I thank thee that thou hast given me a human life to live." In repeating this afterward to my relatives who were with me on the trip, one of them remarked, "But, brother, are there not *other* times when you feel as if life with its many cares costs almost as much as it is worth?"

"Yes, dear sister, I am often tempted to let such thoughts come into my mind, but I always make haste to say, 'Get thee behind me, Satan,' for I am sure these thoughts come from him. It is one of his weapons."

A nephew whom I have spoken of asked me if I had seen the sights. I told him I had seen most of them. Then he inquired if I had been in the great pavilion. I told him I had been through the most of it, and admired it, but I said there was a certain part of it I did not feel inclined to visit.

"O Uncle Amos! you *must* visit that part of it. You certainly should know of these things you talk about. Now, I just want you to go through that whole place, and see what is going on, and see how it is managed—not particularly that you may find fault with it, but that you may be able to speak understandingly about these things connected with so many of our pleasure-resorts. You certainly should know exactly what you are talking about and discussing."

Now, may God help me to be fair and honest, and not let even my prejudices against the liquor-traffic lead me to exaggerate. The pavilion was a beautiful large building with porches and verandas, and seats for hundreds of people—may be thousands. There were fountains, and beds of flowers, and foliage plants, around it. There was plenty of nice drinking-water for all who preferred to drink it. Then there was lemonade, ice-cream soda, and other things of that sort. In connection there was a dining-room and a lunch-room, with a bill of fare that was exceedingly reasonable for such a picnic-ground.

At first I did not quite understand the very reasonable prices. Well, back of the dining-room there was an elaborate array of modern arrangements for furnishing lager beer, and, I suppose, any other kind of beer in any quantity the crowd might demand. Once more may God help me to be truthful and careful. Every thing was clean and orderly. The men and *women* who were drinking were well dressed and respectable-looking; and one would be almost tempted to think the thing was not so bad after all, where it is carried on under proper restrictions. They were doing a very large business when I happened to drop in. The scene was painful to me; but remembering my promise to my young relative I pushed on. It became more and more painful as I proceeded. I thought of the work of the Anti-saloon League, and of the prominent position I have occupied in it ever since it was started. I wondered if it was my duty to encourage such a place by my presence and by walking through it quietly, just as I was doing. More than once I turned and retreated; then I walked in again. Pretty soon I began to see familiar faces. The thought then occurred to me that some of our Medina people would say I was just going through there to spy out which one of my friends and neighbors drank lager beer in an open saloon. I felt guilty and troubled, and I went away.

I do not think there were *many* of our townspeople who visited this part of the excursion-grounds. I did not see anybody showing any signs of intoxication around there. The management was so perfect, very likely nothing of the kind would be tolerated. I did not see any intoxication *anywhere* on the grounds. I did not see any rudeness. I do not know that I heard anybody speak a profane word.

I noticed in the program, just before starting, that all the entertainments during the day were to be free of charge, and this feature commended itself to me. There are many places nowadays where they advertise great attractions; but when you get there it takes quite a pile of money to get through it all. A year ago, in company with a niece in her teens, we took a wheelride over to Akron. As it was at the time of the street fair (and this, you know, is advertised as being entirely free to everybody) we thought we would look it over. First we found we must pay a nickel apiece to get into the inclosure; but a nickel is so small nobody makes a fuss about it. Then we had to pay a nickel apiece more to store our wheels; then ten cents each to see the trick rider on a velocipede. Of course, we would be interested in that. Then the menagerie was 15 cents apiece; and, finally, to get out of the street fair we had to pass through a "midway." Now, some of the midway shows cost 25 cents apiece; but we did not go into any of them; and before we went out my young friend said, "O Uncle Amos! let's get out of this horrid place. I do not see what *anybody* wants to be here for." Well, I felt just about as "Rene" did. We were soon out in the free air of the country, speeding along where every thing was pure and honest and good. You see the managers had planned this thing so that everybody was *obliged* to pass through the filth of midway in order to get out of the trap they found themselves in. Oh dear me! I did not intend to write up street fairs just now; but since I have gone and done it I think I will let it remain. Let us now go back to the great pavilion on that beautiful pleasure-ground.

I told you the entertainments were to be all free. I supposed, when I read the program, that the dollar ticket purchased before starting included admission to all the entertainments. About two o'clock in the afternoon I saw people crowding into the audience-room of the pavilion. By getting on a chair and afterward stepping up higher on to a table I was enabled to see over the heads of the great crowd; and I saw something I enjoyed so much I shall take pleasure in telling you about it. A gymnast was performing upon a trapeze. He made his bow to the audience. I soon found he was not only a gymnast but a humorist, and an expert in both lines. When he made his bow to the audience there was something mechanical and awkward in his manner. When he sprang up into the air and grasped the bar above his head he seemed to be still awkward; and when he climbed, with considerable exertion, so as to sit astride the bar, he still gave one the impression that he was a green hand at the business. Finally he stood up on the bar. I noticed this bar seemed to be a stout brass rod, or perhaps a steel rod covered with brass. He had on light low-down slippers; and while I was noticing how loosely his slippers rested on this brass rod he seemed to lose his balance, swing his arms in a sort of helpless way, apparently, and finally tipped over backward; but just when everybody expected to see him crack his head on the hard board floor, by some unknown power his loose slippers seemed glued to that brass rod, and his feet glued to the slippers. His head went straight down, and in some wonderful way his body swung clear around, and came right up on top of the bar. Then he tipped over forward, went clear around and came up again, and pretty soon he was flying around the bar like a windmill, evidently trying to stop, but could not; but when he came up on top of the bar his feet were just as loose as when he first stepped on it. Now, some ingenious piece of mechanism must have been invented to enable him to do this sleight-of-hand, or, if you choose, sleight-of foot, performance.

I figured up that, to perform such a trick, one would need a stout harness going over his shoulders and down under his feet; and this harness must be so it could be securely attached to the trapeze-bar and yet so it could take hold or let go of it in a second of time. After he jumped down from the bar the shock of alighting seemed to have dislocated his knees and thighs; then he looked down in a quaint way at his deformity, and then at the audience, and then wabbled about the stage as if he were crippled. By some apparent awkwardness he struck his head against one of the pillars on the stage; but his look of blank astonishment to think that the pillar should stand right there when he did not suspect it was so comical and ridiculous that I nearly fell off the table where I was standing, because I was so convulsed with laughter.

Now, this was a very pretty and innocent exhibition. I would not mind paying 25 cents to see exhibitions of gymnastic feats like this. I mean, of course, where human life is not endangered, and where there is no suggestion of any thing bad or wrong. Why, I should be *delighted* to have my three grandchildren see such a performance. In this case there was wonderful skill and agility coupled with a vein of fun and humor that I enjoyed hugely. It interested me to know that God has so made the human frame that it can endure such contortions and such a tremendous strain, and yet be unharmed. How wonderfully the organs of life must be fabricated to stand all sorts of positions and yet every function go on with its work unhindered!

After the trapeze, a very pretty, modest, decently dressed young woman came on the stage. There was a little play with a companion, and some conversation that I could not hear, as I was so far away from the stage. Her companion left, and she stood on the stage alone. I presume my readers will excuse me for describing in print what a thousand or more people saw in broad daylight. Well, this modest-looking and well-behaved young woman deliberately stepped forward and grasped her skirts and threw them over her head, or pretty nearly so. Then she threw one of her feet a good deal higher than her head, and gave an exhibition of what I should call a gymnastic dance that might have been pretty if it had been done by a man instead of a woman. Somebody suggested that it *was* a man; but I am sure it was a woman. By the way the audience applauded I was obliged to conclude that this was nothing unusual. The higher she kicked her feet the louder was the applause; and when she turned a handspring with both feet in the air, and her clothing covering her head and arms entirely, there was louder applause for some time. There was no laugh on my face, I assure you, when this performance began; in fact, I was a great way from it when I climbed down off from my table and got out into the open air. My face was flushed with indignation. I was ready to denounce the place and the people; and could my bicycle have gone across the water I do not know but I would have shaken the dust from my feet (or rather, perhaps, the white sand out of my shoes) and started for home then and there. Of late years I do not talk out what I feel on the impulse of the moment as much as I used to do. I walked out among the trees and thought the matter over. If I went home before I found my friends and relatives they would wonder, and think singular of it. When I found them I had cooled off somewhat; but I had not changed my views very much, after all. Many of you have read the book that suggested the thought, "What would Jesus do?" I sat down and thought it over. Did Jesus want me to be in such a place? Was my nephew right when he said I ought to know about such places? Well, perhaps I should; but just now I humbly confess that I do not exactly know what *is* right and what is *best* in matters of this kind. Thousands of my good friends will say, unhesitatingly, that *I* had no *business* in such a place, and that it was my plain duty to get out of it just as soon as possible. They might urge that, by my presence, I gave encouragement for others to go to that or similar places. Then there are other thousands who say that I would harm the cause dear to my heart *more* by holding myself entirely aloof from pleasure-resorts, and yet writing about these things when I know almost *nothing* about them. These friends might say, and perhaps do say, "Brother Root, you have come down hard and severe on Sunday excursions. Now, when people all respect the Sabbath, as you would have them do, and plan their excursions on week days, are you going to come down on *these* things too, and leave the boys and girls to think that you are one of those old gray-headed deacons who do not see any fun in the world anywhere, and think everybody should hoe corn, even on the Fourth of July?"

Dear friends, I have studied this ground all over, and I am praying that God may give me wisdom and guidance; and I feel just now like asking you in a like manner to pray that my advice may be good in this matter of holidays, excursions, pleasure-resorts, and recreations. You may remember the dear Savior once said in that wonderful prayer, "I pray not that thou shouldst take them out of the world, but that thou shouldst keep them from the evil." And, again, we know he once attended a wedding, and not only encouraged it by his presence, but actually furnished refreshment by that notable first miracle. We have reason to think that he went out among men, especially where he was invited. He did not shun crowds, and he frequently went among the rich; attended great feasts, and was one among the people.

I said I witnessed no intoxication while at the pleasure-resort. Two fine large steamers carry the people to and from the places, running every thirty minutes. When I first got aboard, in finding a place to store my wheel out of the way I ran across a lager-beer saloon, and it was any thing but a pleasant place to the sight, smell, or ears. I think a band is employed on the boat. The members of it have a sort of uniform. On my return, by accident I got close to the saloon again. I did not go there purposely, friends, to find out what I could see. Men and boys were crowding into the saloon. They had been drinking more or less all day, and quite a good many were well along toward intoxication. I had to pass the saloon with my wheel when I came to the landing, and almost got into the middle of a fight. The fight was between two or more members of the band. The beer was the cause of it. Others interfered, and begged of them not to make a row on the boat. The flushed face and bloodshot eyes of one of the men indicated that he had scarcely sense enough left to dimly realize that a fight was *not* just the thing close to the gang-plank, where excursionists were crowding to get off. The point I wished to make was this: Even the drinking people who, while in that great pavilion during the day behaved themselves all right, may not have behaved themselves after they got home at night. What stories might be told if we knew just what the results are after attending an excursion where beer is sold all day long to all who may call for it! There are a good many resorts, I know, where no intoxicants are sold; but I believe they are mostly those that are not kept open on Sunday. It seems to me that good people ought to endeavor to patronize the temperance places. Still, it may be well for good people to know just about how things are managed in these other places where beer is sold and good order is preserved. I have been told, since coming home, that the performance that I have described is what is called the "skirt dance;" and although nobody has told me, something suggests to me just now that the great pavilion, with its low-priced refreshments, fine music, and free entertainment of all kinds, is nothing more nor less than a well-conducted beer-garden on a large scale. These skilled performers, these beautiful grounds and expensive buildings, were built and all the expenses paid by the profit that comes from their tremendous trade in beer. If somebody had informed me that I was invited to attend a performance at a beer-garden near the city of Sandusky, I would have refused outright to go, and very likely the same is true of thousands of other people who go there. With a hope and a prayer that what I have written gives a fair and honest report of the existing state of affairs at one of our great pleasure-resorts, I close. May God help us in battling for the right. May he give us wisdom to recognize humanity as it averages the world over; and may we have grace from on high to enable us to avoid going to either extreme. We are *in* the world; we are *of* the world; and may we think again of that wonderful prayer, "I pray not that thou shouldst take them out of the world, but that thou shouldst keep them from the evil."

TOBACCO AND THE PRESIDENT OF THE UNITED STATES.

The following was sent us by one of our subscribers, in a letter. I can not tell from what paper it was clipped, but it is credited originally to the Chicago *Register:*

> It is said that, with the possible exception of Grant, the present occupant of the White House, Wm. McKinley, is the most inveterate smoker ever elected to the presidency. So many cigars has the President cremated in times gone by that recently his nerves began to break down. He has smoked during all his working hours for years, and until a short time ago experienced little ill effect. He has now, however, found out that he must abandon or lessen the habit, or it will cut his career short.
>
> The discovery that he was soaked with nicotine, and was likely to become a wreck, according to a Washington dispatch, caused McKinley to seek the hot springs of Virginia, to take the course of baths prescribed by his physicians to steam out of his system the poisons instilled through the excessive use of tobacco. The temperature of the water at these springs varies, but seldom falls below 104 degrees. A course of baths requires about ten days, one bath each day. In this time, if Mr. McKinley can control his appetite, the poison will be boiled out of his system.

Now, very likely the above is an exaggeration — at least I hope it is, and I shall be exceedingly glad if somebody who knows the facts in the case will tell us how much is truth and how much is error.

Let me say just a word in defense of our President while we are on this subject. His pastor has just written a little note that was published recently in the *Christian Herald*, to the effect that our President still holds to the habit of his life, Bible-reading and prayer, before he goes to bed; and that, even when he has been kept up by important duties until a very late hour, he still holds on to his Bible-reading before retiring. May God be praised that we have a God-fearing President to at least *this* extent!

HUMBUG WEATHER PROPHETS.

May be some of the friends think I am devoting considerable space to this matter; but it seems as if, as with Electropoise and Oxydonor, our people need considerable exhortation and shaking up on the subject, especially when so many people, who ought to know better, accept as *science* such silly nonsense. The Department of Agriculture at Washington has just sent out an exceedingly valuable bulletin, entitled "Weather Forecasting." From page 15 I extract the following, which are the words of our able and efficient Chief of the Weather Bureau, Willis L. Moore:

> At the present time I know of no scientific man who essays to make long-range weather predictions, and I would especially caution the public against the imposture of charlatans and astrologists, who simply prey upon the credulity of the people. As storms of more or less intensity pass over large portions of our country every few days during the greater part of the year, and as it is seldom that the weather report does not show one or more storms as operating somewhere within our broad domain, it is easy to forecast thunderstorms about a certain time in July, or a cold wave and snow about a certain period in January, and stand a fair chance to become accidentally famous as

a prophet. You may select any three equidistant dates in January, and forecast high wind, snow, and cold for New York city, and stand a fair chance of having the fraudulent forecast verified in two out of three cases, provided that you claim a storm coming the day before or after one of your dates to be the storm which you expected.

I believe it is impossible for any one to-day to make a forecast, based fairly upon any principles of physics or upon any empiric rule in meteorology, for a greater period than one or two days in winter or more than two or three days in summer; and there are times in winter when the movements of air conditions are so rapid that it is extremely difficult to forecast even for the space of one day. The Weather Bureau takes the public into its confidence in this matter, and does not claim to be able to do more than it is possible to accomplish.

METHOD IN MADNESS; A BEE-KEEPER IN A LUNATIC ASYLUM.

GLEANINGS not only goes to all sorts of people, but it has frequently made its visits to, and been highly prized at, evidently, one or more lunatic asylums. From a pathetic letter from one of these unfortunate brothers I have taken the liberty of copying the following:

> *Mr. Root:*—I have no honey-bees here. You never sent me any of your journals to the hospital here since I was at this house. I had one when I was down at the other house, but some scamp stole it. They do not like bees here. I use no tobacco at all. I do not even smoke. I have not since my name was used for President.
>
> Harrisburg, Pa., July 19. G. B.

We will gladly send our poor brother copies of GLEANINGS as long as he is able to read them; and if some other unfortunate steals them, all the better. We do not believe in stealing, as a rule; but when somebody steals your copy of GLEANINGS, just write a postal to your friend A. I. R., and he will replace it free of charge. The above is pathetic in many of its sentences. Our poor friend, it seems, remembers the Tobacco Column, and even through his poor benighted mind he seems to recognize that the President of the United States certainly *ought* to be a clean man in every sense of the word, and therefore he has given up his tobacco. Would it not be well for some who stand high in office to follow the example, in at least one respect, of the poor bee-keeper who has by misfortune landed in an asylum?

CRIMSON CLOVER.

The Department of Agriculture, Washington, has sent out a new bulletin in regard to this clover, from which I make an extract as follows:

> The use of crimson clover (*Trifolium incarnatum*) has increased to such an extent that it is now a standard crop in many parts of the Southern and Middle States. It is distinguished by its long head of brilliant scarlet blossoms and by the great depth to which its roots make their way. Wherever the winters are not too severe it thrives and is a valuable plant for soiling or for hay. It is a winter annual, the seed being sown any time from the middle of July to late fall in the Southern States. It grows throughout the milder weather in winter, and quickly makes a dense cover to the ground in the spring. This can be pastured, cut for hay, or turned under for green manure, or all three, depending upon conditions.
>
> The seed of crimson clover is larger than that of red or mammoth clover, and is almost perfectly oval in shape. The fresh seed is of a bright reddish-yellow color, and has a high polish. As the seed becomes older the color changes to a reddish brown, and eventually the polish is lost, and the seed has a dull, dark reddish-brown color. Such seed should never be purchased, as it is too old to grow well.
>
> In general the seed of crimson clover is less liable to contain many weed seeds than the seed of other clovers. It is harvested before most of the weeds have matured their seed, and being planted in late summer or fall it tends to choke out what weeds may come up with the young plants.

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.]		[Price without postage.
8	Bible, good print, neatly bound	20
10	Bunyan's Pilgrim's Progress**	50
20	Illustrated Pilgrim's Progress**	75

This is a large book of 425 pages, and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25 cents more.

6	First Steps for Little Feet	50

By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound and fully illustrated.

3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*	10
1	Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper	5
2	Same, board covers	20
5	Same, words and music, small type, board cov.	45
10	Same, words and music, board covers	75
3	New Testament in pretty flexible covers	05
5	New Testament, new version, paper covers	10
5	Robinson Crusoe, paper cover	10
4	Stepping Heavenward**	18
15	Story of the Bible**	1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

	"The Life of Trust," by Geo. Muller**	1 25
5	Tobacco Manual**	45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

15	A B C of Bee Culture, cloth	1 10
	Advanced Bee Culture, by W. Z. Hutchinson	50
3	Amateur Bee-keeper, by J. W. Rouse	22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I., §	2 36
21	Same, Vol. II., §	2 79
	Same, Vols. I. and II., postpaid	5 25
10	Bees and Honey, by T. G. Newman	90
10	Cook's New Manual, cloth	1 15
5	Doolittle on Queen-rearing	95
2	Dzierzon Theory	10
3	Foul Brood; Its Natural History and Rational Treatment	22
1	Honey as Food and Medicine	05
15	Langstroth Revised, by Chas. Dadant & Son	1 10
15	Quinby's New Bee-keeping	1 40
	Thirty Years Among the Bees, by H Alley	50
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey-bee, by Thos. William Cowan	95
	British Bee-keeper's Guide-book, by Thomas William Cowan, England §	40

3 | Merrybanks and His Neighbor, by A. I. Root... 15
4 | Winter Problem in Bee-keeping, by Pierce...... 46
| Bienenzucht und Honiggewinnung.................. 50

Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.

MISCELLANEOUS HAND-BOOKS.

5 | An Egg farm, Stoddard **........................ 40
5 | A B C of Carp Culture, by Geo. Finley............. 25
5 | A B C of Strawberry Culture,** by T. B. Terry.. 35

Probably the leading book of the world on strawberries.

3 | A B C of Potato Culture, Terry **...................... 35

This is T. B. Terry's first and most masterly work.

| Barn Plans and Out-buildings*........................1 50
| Canary birds, paper 50
2 | Celery for Profit, by T. Greiner** 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

15 | Draining for Profit and Health, Warring.........1 35
10 | Fuller's Grape Culturist **................................1 15
8 | Domestic Economy, by I. H. Mayer, M D.** ... 30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10 | Farming for Boys*..1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-growing** 90
12 | Gardening for Pleasure, Henderson*.................1 35
12 | Gardening for Profit**......................................1 35
8 | Gardening for Young and Old, Harris**...........1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants 20

This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse construction, by Prof, Taft**.........1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15 | How to Make the Garden Pay**.......................1 35
5 | Garden and Farm Topics, Henderson**............ 60
| Gray's School and Field Book of Botany...........1 80
5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper*............................ 20
5 | Gregory on Onions, paper*............................... 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen................................ 05
10 | Household Conveniences..................................1 40
2 | How to Propagate and Grow Fruit, Green*...... 15
10 | How to Get Well and Keep Well....................... 90

An exposition of the Salisbury system of curing disease by the "lean-meat diet."

2 | Injurious Insects, Cook...................................... 10
10 | Irrigation for the Farm, Garden, and Orchard* 1 10

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

7 | Market-gardening and Farm Notes.................. 75

This is by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drouth threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

3 | Maple Sugar and the Sugar-bush**.................... 32
4 | Peabody's Webster's Dictionary........................ 10

Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers.................................. 30
6 | The same in cloth covers.................................. 65
3 | Onions for Profit**.. 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

| Our Farming, by T. B. Terry**................ 1 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming, before the world at the present day. The price is $2.00 postpaid, but we have made arrangements to furnish it for only $1.50.

We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

1 | Poultry for Pleasure and Profit.**..................... 10
8 | Practical Floriculture, Henderson.*............1 10
10 | Profits in Poultry.* 75
2 | Practical Turkey-raising 10

By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character.** 15
1 | Silk and the Silkworm 10
10 | Small-Fruit Culturist, Fuller 1 10
10 | Success in Market-Gardening* 90
10 | Talks on Manures* 1 35
7 | Ten Acres Enough 75
10 | The New Agriculture; or, the Waters Led Captive (a $1.50 book) 40
2 | Treatise on the Horse and his Diseases........ 10
5 | Tile Drainage, by W. I. Chamberlain........... 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, Ohio.

3 | Tomato Culture 35
3 | Vegetables under Glass, by H. A. Dreer**...... 20
3 | Vegetables in the Open Air.............................. 20

This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle.............. 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope**.. 47
8 | What to Do and How to be Happy While doing It, by A. I. Root 42

The A. I. Root Co., Medina, O.

GOOD THINGS FROM OTHER JOURNALS.

GOOD things appear in other journals besides the Bee-keepers' Review; yet the Review uses its utmost endeavor to gather them all up and lay them before its readers. To be sure, the editor himself might do all this work of selecting these good things, also that of criticising, and the pointing out of errors, and so he does, to a certain extent, in the Editorial and Extracted departments, but, by bringing in the assistance of other minds, the Review is thereby broadened.

As Mr. R. L. Taylor is employed to help in pointing out errors and fallacious ideas, and to comment upon them, so Dr. A. B. Mason, of Toledo, Ohio, assists in finding the good things, holding them up to view, and pointing out their goodness—thus is the Review rounded out and made a well-balanced journal.

Dr. Mason has had many years of varied experience with bees: he reads all the bee-journals, is secretary of the United States Bee-keepers' Association, and the possessor of a free and chatty style that makes his writings very readable.

Just think of it a moment: Not only does the Review leave no stone unturned in securing the best possible original matter, but there are four men — the editor and Messrs. Taylor, Mason, and Thompson — constantly scanning the pages of the leading bee-journals of both the new and the old world—on the lookout for something worthy of repetition or comment. In this way, as well as in others, does the Review really and truly demonstrate the appropriateness of its name.

Send 10 cts. for three late but different issues, and the 10 cts. may apply on any subscription sent in during the year.

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Queens by Return Mail.

Daughters of best imported Italian queen mothers; reared by Doolittle method· warranted purely mated to drones of imported stock from a different source—hence, a direct cross. Fourteen years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens 50 cts. each. Safe delivery and satisfaction in every case, or money refunded.

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For Sale.—129 hives, empty, with lids, bottom-boards, and zinc honey-boards, and frames; ten-frame hives, with L. Simp. frames, at 50c each complete, f. o. b. at Chenango Junction, Brazoria Co., Tex. Write me at Elmont, Grayson Co., Tex., for further particulars. J. F. TEEL.
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W. C. SIMONS, Arlington, Pa.

I have at present 50 black and mismated queens for sale at 25 cts. each. C. G. MARSH, Kirkwood, N. Y.

Apples for Sale.

By the barrel or in bulk, in car lots or less. Good late-keeping winter fruit. Baldwins, Greenings, Northern Spy, and all leading varieties.
F. W. DEAN, New Milford, Pa.

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Notices will be inserted under this head at one half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—For cash, No. 1 white honey in Danz. 4×5 plain sections. Write for particulars. Four sizes of Prize cartons for comb honey, and 66-page book, "Facts about Bees," for 6 cts. in stamps.
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WANTED.—To exchange a beautiful parlor heater (direct from factory) for beeswax.
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WANTED.—To exchange Webster's unabr'd dictionary, for untested queens. W. S. WRIGHT,
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WANTED.—To exchange Barnes combined saw and 38-40 caliber Marlin repeating rifle.
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WANTED.—A man, with small family, who understands bee-keeping, to take charge of house and care for small stock the coming winter, and rent or work an apiary on shares the following year.
A. E. WOODWARD, Grooms, Saratoga Co., N. Y.

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J. E. HENDERSON, Elm Grove, Ohio Co., W. Va.

WANTED. — To exchange piano, organ, graphophone, or other articles for first-class sections, comb foundation, queen and drone traps, Clark's smokers, and other bee-fixtures. Address
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W. J. FOREHAND, = FORT DEPOSIT, ALA.

QUEENS, QUEENS, QUEENS.
By Return Mail.

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Select tested	each,	$1.50.
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W. W. CARY, = Lyonsville, Mass.

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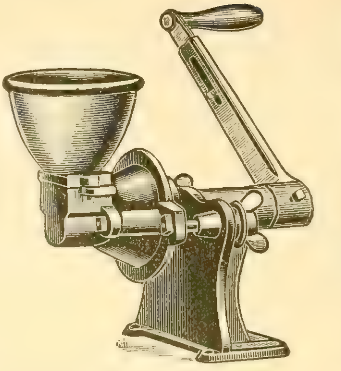

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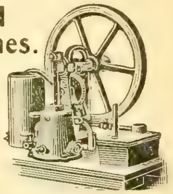

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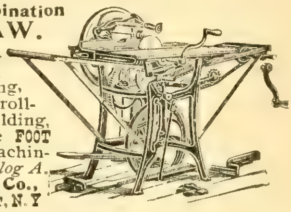

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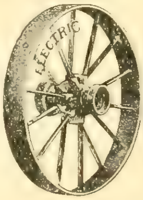

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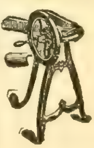

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At this time of the year queens can be reared at a less cost than earlier in the season hence, I am going to make a little better offer on those queens of that superior stock than I have been making. I shall not make any reduction in the price of the queens themselves, as a queen alone will be $1.50; but, for $2.00 I will send a queen, and the Review from the time the order is received to the end of 1900!

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Special Offer... For the next 60 days we will sell one warranted queen at 50 cents. These queens are warranted purely mated; half dozen, $3.00; dozen, $5.50. Address

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The A. I. Root Co. Have one of My $100 Queens,

but I have two others equally good from which I am rearing all my queens. The A. I. Root Co. say some of the best breeders they ever had came from my apiary, and so say 5000 other bee-keepers, and I can produce the letters to back up this statement I have bred out the swarming and vicious characteristics from my strain of bees, which I call Golden Carniolans, or Adels. One queen, $1.00; two queens, $1.80; three queens, $2.75; six queens, $5.00, or $9.00 per dozen. Every thing guaranteed Book on Queen-rearing, so long as supply lasts, sent to each customer.

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MUTH'S HONEY-EXTRACTORS,
LANGSTROTH HIVES,

and every thing pertaining to same; in fact, every thing used by bee-keepers. Send for our catalog.

◆

WANTED---EXTRACTED HONEY.

I am now in shape to BUY extracted honey, either in large or small lots. Parties in the South, or in Kentucky, Indiana, Ohio, or West Virginia having any to offer will do well to sell to me, as Cincinnati is the greatest market for extracted honey in the States. Submit a small sample, stating quantity, style of package, and price expected.

◆

C. H. W. WEBER,
Successor to Chas. F. Muth & Son and A. Muth.
2146-8 Central Ave., Cincinnati, O.

References.—Western German Bank, Brighton German Bank Co., of Cincinnati, Ohio.

In writing, mention GLEANINGS.

SPECIAL NOTICES BY BUSINESS MANAGER

The new edition of the A B C book will not be out by Sept. 1st, but we hope it will be ready for delivery Sept. 15th. This last edition contains more new matter, by considerable, than was put into any of the former editions. Quite a number of entirely new subjects have been incorporated in it, and, in short, it will be almost entirely new.

FORMER PRICES WITHDRAWN.

We call attention to an announcement on the cover page of this issue, withdrawing all former prices on bee-hives, sections, shipping-cases, etc. If in need of any goods before the new schedules of prices are published, send in a list of what you want, and we will quote you. The new prices will be, approximately, 20 per cent higher than former prices; in some cases quite a little more, and in a few cases a trifle less than this per cent.

SCREEN WIRE CLOTH.

We have for some time been getting higher prices for this article, but have failed to note them in this department. For the present the price will be 2c per sq. foot for cut pieces; 1¾c for 50 or 100 foot rolls, which is an advance of ½c a foot over prices listed in our catalog.

ADVANCE IN WIRE POULTRY-NETTING.

With all other wire goods it becomes necessary to quote advanced prices on Climax netting listed on the cover page of our catalog. Taking effect Sept. 1 we make the following prices:

12-inch	Climax	netting,	80c	per roll,	150	feet long.
18	"	"	"	1 20	"	"
24	"	"	"	1 60	"	"
30	"	"	"	2 00	"	"
36	"	"	"	2 40	"	"
42	"	"	"	2 80	"	"
48	"	"	"	3 20	"	"
60	"	"	"	4 00	"	"
72	"	"	"	4 80	"	"

¾ or 1 inch staples for same, 10 cts. per lb. Climax sheep and hog fencing will be, for

23	inches wide,	$6 00	per roll of 20 rods.
50	" "	10 80	" " "

Special Notices by A. I. Root.

WANTED—WHITTAKER ONIONS OR ONION-SETS.

We find ourselves already sold out of this variety of potato onions. Now, as we have sold quite a quantity of them within the last three or four years, we think our readers must have at least a few to spare. Let us know what you have and what you will take for them. My impression is they differ from the ordinary yellow potato onion, and that they grow, under favorable conditions, a much larger onion.

POTTED STRAWBERRY-PLANTS AT THIS DATE.

Our recent low prices brought in quite a flood of orders, but they are mostly filled at this writing. With the scant supply of rain we are having almost everywhere, layer plants would be pretty sure to be a failure—that is, unless they are watered and shaded; and even then it is a pretty hard matter to make them all grow with weather so exceedingly dry. I should be glad of reports as to how the potted plants are succeeding during this very dry fall.

AMERICAN PEARL ONION-SETS.

This is the month for planting them out; but I would not advise anybody to go into it very heavily until he has ascertained that on his ground, and with his knowledge of the business, they will winter over all right. At present we can not make a better price than 25 cts. a quart; peck, $1.50; bushel, $5.00. Any thing over a quart will have to be sent from Philadelphia. Prizetaker onion-sets, same price. These succeed with us about as well as the American Pearl. Winter onion-sets succeed everywhere. We have a good stock of these at $1.50 per bushel.

CONVENTION NOTICE.

The 33d semi annual meeting and picnic of the Seneca County Bee-keepers' Association will be held at Elm Beach, three miles east of Hayt Corners, on Cayuga Lake, Wednesday, Sept. 13, 1899. Address

C. B. Howard, Sec., Romulus, N. Y.

Queens. I will send you young laying Italian queens, warranted purely mated with drones of a different strain, at 50 cents each. Address

JAMES WOOD, North Dana, Mass.

FOR SALE.—Ten swarms of bees in Root's Simplicity hives, at $2.50 per swarm; also 100 brood-combs, at 12 cts. each, all in first-class condition.

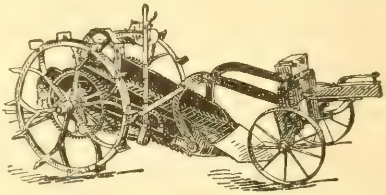
E. R. GIBBS, Norwalk, Ohio.

WARRANTED QUEENS from imported mother, 50 cts. Hybrid queens, 25 cts.

J. B. Hains, Bedford, Ohio.

Advertiser's Department of Short Write-ups.

How are you Going to Dig your Potatoes?



It will be time very soon to dig your potatoes; and, in fact, in some places it is time already. If you want something that will put the potatoes *all* on top of the ground, and do it, too, with one good strong team, you probably can not do any better than to use the Dowden potato-digger, made by the Dowden Mfg. Co., Prairie City, Iowa. Drop them a postal card, and they will cheerfully give you all the particulars, answering every question anybody will probably ask in regard to the machine. Mr. A. I. Root, of the A. I. Root Co., is using one with excellent satisfaction in digging his crop of potatoes grown expressly for seed.

KIND WORDS FROM OUR CUSTOMERS.

Gleanings is ever welcome at my home. I can not do without it. All that I am sorry for is that I didn't take it years ago, as I have handled bees for 25 years and have had no less than 20 colonies at any one time, 80 at present. There is something singular about bee culture. The more you learn, the more you wish to. The 25,000 sections you shipped me are all right—none better.

S. Wight.

Sickels, Mich.

THE CORNEIL SMOKER; A HINT TO EDITORS.

The Corneil smoker you sent is splendid for either noise or smoke—the best smoker I ever saw. When the tube leading from the bellows gets clogged with soot and creosote I shall bore a ⅜-inch hole in the bellows just back of the valve, and clean the tube with a stick, ramrod fashion. The hole is to be closed with a wooden plug. I have made such a hole in all smokers for years, except the Crane, which does not admit of it.

I suggest that all editors keep Corneil smokers to keep intruders out of their sanctums. I have put every living thing that I have tried it on to a retreat, including men larger than I am. A good revolver would not take my smoker, even up.

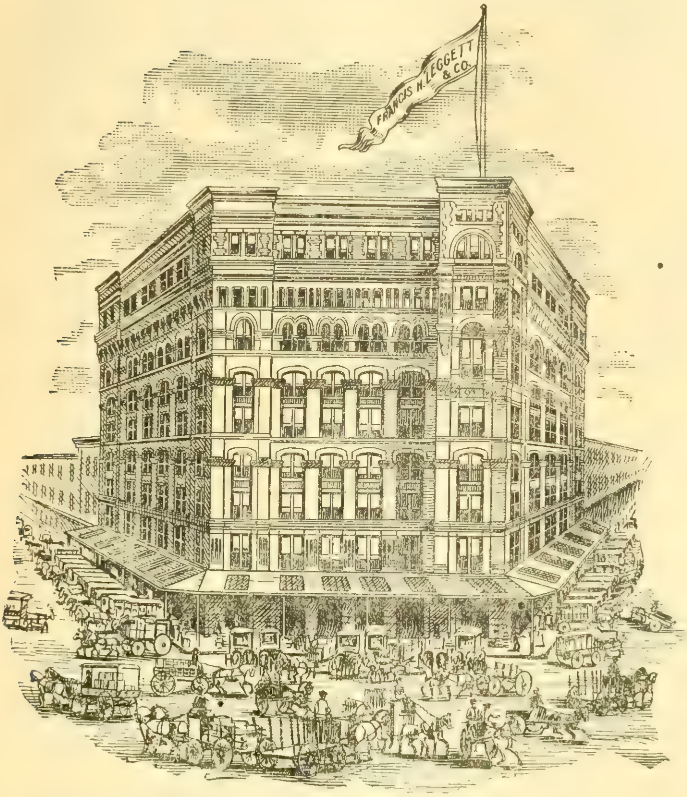
Accept thanks for "Facts about Bees." For comb honey the D. hive is certainly good. For extracted honey it suits me better to turn bees loose in a large hive.

W. A. H. Gilstrap.

Grayson, Cal.

FRANCIS H. LEGGETT & CO.,

WEST BROADWAY, FRANKLIN AND VARICK STS.,
NEW YORK.


FRANCIS H. LEGGETT & CO.

Wholesale Commission Department.

Maple Sugar,
Maple Syrup,
Beeswax,
Honey.

CAR LOTS A SPECIALTY.

HONEY

Our statistics show an ever growing demand for honey among consumers, and we anticipate a period when honey will be as common and necessary a dish upon dining tables as butter is now. Our enormous dealings in honey have constrained us to separate this product from our general stock of foods, and organize a

HONEY DEPARTMENT

in which we handle honey by the crate, barrel or car load We purchase from the producer only, for our own account for cash, or receive honey upon consignment, under limitations of selling prices, with liberal cash advances when requested. Quotations furnished upon application, for any variety or quantity of honey, either buying or selling. We are represented in every state of the union, as well as in many European states Over one hundred of our men are constantly travelling amongst the retailers and jobbers of groceries in the United States. In this way we find an outlet for all grades of honey. We would say to shippers that the market at present is in good shape for new **EXTRACTED** or **COMB HONEY.** We can also market your **MAPLE SYRUP** and **MAPLE SUGAR,** our dealings in these are very heavy. We extend thanks to our shippers for favors of the past, and hope for a continuance of their shipments.

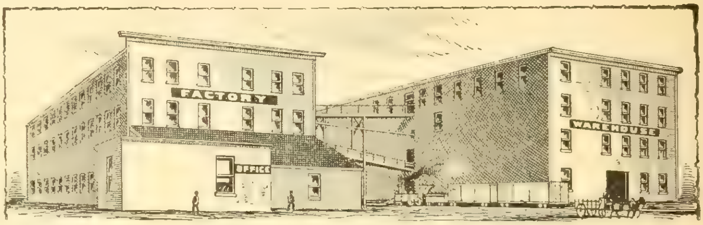
Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

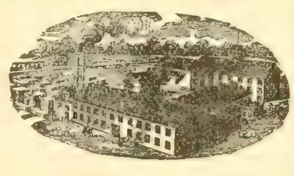
We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.



Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.



BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **Tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free

Address E. KRETCHMER, Red Oak, Iowa.

In writing advertisers, please mention Gleanings.

Until October 1st : : : :

We will furnish the BEST of untested Italian queens for 50c; $6 per dozen. Tested, $1 each. Beautiful yellow queens, large and healthy; bees the best of honey-gatheres. Orders filled by return mail, and satisfaction guaranteed.

J. W. K. Shaw, : : Loreauville, La.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. Free, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

QUEENS. Untested, warranted purely mated, after July 1, 55 cts. each; 6 for $3.00. Select tested, $1.00 each; 6 for $5.00. Extra select breeding queens, $2 00 each. The very best of golden Italians. E. A. SEELEY, Bloomer, Ark. P. O. M. O. Office, Lavaca, Ark.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

QUEENS. Reared from Italian mothers. Warranted purely mated. No better stock can be had at *any price*. 60c. Tested, 80c. Try them. A. J. Dauterive, Loreauville, La.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

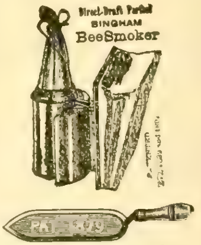
Smoke Engine (largest smoker made.)	4-inch	stove.	Doz. $13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	" 9.00;	"	1.10
Conqueror	3-in.	"	" 6.50;	"	1.00
Large	2½-in.	"	" 5.00;	"	.90
Plain	2-in.	"	" 4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	" 4.50;	"	.60
Honey-knife			" 6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. Eagerty, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

ALBANY.—Honey talk is very firm. We are getting customers' idea worked up to a good price for early receipts at least. Receipts light as yet. We quote fancy white comb, 15; No. 1 white, 13@14; dark, 10@11; mixed, 11@13; extracted white, 8½@9; amber, 7½@8; dark, 6@6½. MACDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
Sept. 9. Albany, N. Y.

NEW YORK.—Good demand for new crop white or amber comb honey. A little early for buckwheat yet. We quote as follows: Fancy white, 14@15; No. 1, 12@13; fancy amber, 10@11; No. 1, 9@10; fancy buckwheat, 8@9; No. 1, 6@7; extracted white, 7@8; light amber, 6@7; dark, 5@5½. FRANCIS H. LEGGETT,
Franklin, West Broadway, and Varick Sts.,
Sept. 9. New York City.

COLUMBUS.—But little of the new crop has found its way to this market, and, owing to scarcity, the prices obtained are not a criterion of what this market will do in a few weeks. However, a good demand will exist; and, as we want supplies, will either buy or handle on commission. Those having honey will do well to write us. Shall be pleased to hear from carlot shippers. EVANS & TURNER,
Sept. 7. Fourth and Town Sts., Columbus, O.

CHICAGO.—Consignments of small lots of comb are becoming more frequent; and while there are some who will not buy at the prevailing price, yet a fair trade is being done. This applies also to extracted and beeswax. Fancy white comb, 15; No. 1, 13@14; light amber, 11@12; dark and amber, 9@10; extracted white, 7@8; amber, 6½@7; dark, 6@6½. Beeswax, 25@26. R. A. BURNETT & CO.,
Sept. 7. 163 S. Water St., Chicago, Ill.

MILWAUKEE.—While the receipts of honey are not large there is enough to supply the present demand, as the consumers of honey are not eating very much yet, and some think the prices should not be any more than last crop. However, we are able to sell fancy comb and choice extracted at the following prices: Fancy 1-lb. sections, 14@15; No. 1, 14@15; No. 2, 12@13; extracted, in barrels and kegs, white, 7¾@8; amber, 6@6½. Beeswax, 25@26c. A. V. BISHOP & CO.,
Aug. 29. Milwaukee, Wis.

BOSTON.—Practically no new comb honey has been received as yet, and stocks are steadily being reduced so that there is really no honey on hand, with quite a little inquiry. We quote our market: Fancy white comb, 1-lb. sections, 16; A No. 1, 14@15; No. 1, 12@13½; No 2, 11; light amber extracted, 8@8½; amber, none to quote. Beeswax, 27. We strongly advise shipments of comb honey to be made as early as possible.
BLAKE, SCOTT & LEE,
Sept. 7. 57 Chatham St., Boston, Mass.

DETROIT.—Very little honey to be found on market. Producers are having hard work to satisfy local trade. White comb, 14@15; dark comb, 12@13; white extracted, 7½@8; no market for dark extracted. Beeswax, 23@25. M. H. HUNT & SON,
Sept. 12. Bell Branch, Mich.

PHILADELPHIA.—Honey has been coming very freely of late; and, with larger crops than expected, the market is still unsettled. We quote fancy comb, 15@16; No. 1, 12; amber, 10; extracted, fancy, 8; amber, 6@7; dark, 5½. We are producers of honey—do not handle on commission. WM. A. SELSER,
Sept. 7. 10 Vine St., Philadelphia, Pa.

CINCINNATI.—The honey market is not so active as ten days ago. Consumers and manufacturers have their first wants satisfied, and it is already hard to effect sales. It was different some time back. More carloads of honey from the West are offered than any one supposed, and their appearance has taken the boom all out of the market. Fancy comb brings 12@14 on arrival; lower grades not wanted. Extracted clover brings 6@7¼; amber and southern, 4½@5½. Beeswax, 23 C. H. W. WEBER,
Successor to Chas. F. Muth & Son,
Sept. 7. 2146 48 Central Ave., Cincinnati, O.

FOR SALE.—1500 lbs. fancy yellow comb honey from basswood, white clover, goldenrod, asters, and milkweed, at 14 cts., in non-drip shipping cases. 1500 lbs. of the same extracted, in barrels, at 6½c; in cans, 7c. On cars at Barron.
FRANK WILLARD, Prairie Farm, Wis.

FOR SALE.—1000 lbs. pure sourwood honey in 1-lb. sections, 24 lb. shipping-cases, at 14 cts. per lb., f. o. b. Evington or Lynchburg, Va.
C. E. STINNETT, Brierfield, Va.

FOR SALE.—Choice new light amber honey at $4.50 per can of 58 lbs., net. Samples postpaid, 10 cts.
R. & E. C. PORTER, Lewistown, Ills.

FOR SALE.—We have some nice basswood honey in kegs and cans at 8@8½ cts. per lb. Sample 5 cts.
I. J. STRINGHAM, 105 Park Pl., New York.

WANTED.—Comb and extracted honey. State price, kind, and quantity. BLAKE, SCOTT & LEE,
57 Chatham St., Boston, Mass.

WANTED.—Your honey. We will buy it, no matter where you are. Address, giving description and price.
THOS. C. STANLEY & SON, Fairfield, Ill.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
163 South Water St., Chicago, Ill.

WANTED.—Quantity lots of comb and extracted honey. Car lots preferred. B. WALKER, Evart, Mich.

FOR SALE.—129 hives, empty, with lids, bottom-boards, zinc honey-boards, and frames, 10-frame hives with Langstroth Simplicity frames, at 50 cents each, complete, f. o. b. at Chenango Jc., Brazoria Co., Tex. Reason for selling, bees all drowned. For particulars write J. F. TEEL, Elmont, Grayson Co., Tex.

A GREAT CHANCE for a man with the cash to purchase 174 acres of land, house, barn, honey-house, and 100 colonies of bees, situated on the east coast of Florida, in the healthiest and best climate on earth. Inquire of E. A. MARSH, Oak Hill, Fla.

For Honey-gathering Qualities and Whiteness of Cappings, Moore's Strain of Italians Ahead.

Jno. S. Callbreath, Rock Rift, N. Y., says: "The queen I got of you produced bees that, for honey-gathering qualities and whiteness of cappings, were ahead of any thing that I have had; and I have had others that I supposed were the best." Such reports as the above show that my labors for the past 20 years to improve the Italian bee have not been in vain.

Warranted queens, 75c each; 6 for $4.00; 12 for $7.00. Select warranted, $1.00 each; 6 for $5.00; 12 for $9.00. Safe arrival and satisfaction guaranteed. The above prices are good for the rest of this season only.

J. P. MOORE, Lock Box 1, Morgan, Pend. Co., Ky.

Over 15 Months for Only $1.00

to a New Subscriber.

To the new subscriber to the WEEKLY AMERICAN BEE JOURNAL, who sends us $1.00, we will mail it from the time the $1.00 is received to the end of 1900—making over 15 months, or ABOUT 65 COPIES.

◆

The Philadelphia Convention Report.

We will publish a FULL REPORT of the great Philadelphia convention of the United States Bee-keepers' Association, which was held Sept. 5, 6, and 7. This report alone will be worth a dollar. Better get on our list AT ONCE, and begin to read America's only weekly bee-paper. Sample copy for the asking.

— ADDRESS —

Geo. W. York & Co., 118 Michigan Street, **Chicago, Ill.**

FACTS About Bees.

REVISED EDITION.

How to get

GILT-EDGED HONEY

Send 2c stamp to

THE A. I. ROOT CO.,
Medina, Ohio,
or F. Danzenbaker,
Box 66, Washington, D.C.

NOTICE! NOTICE!

H. G. Quirin, the queen-breeder, has 600 Golden Italian queens WARRANTED PURELY MATED, which will be sold until further notice at 50c each; six for $2.75. Selected queens, large, and yellow all over, at 75c each; six for $4.00. Select tested, $1.50 each. Queens sent by return mail; safe delivery and satisfaction guaranteed. My queens are prolific, and the bees excellent workers. Read testimonials.

Romeo, Mich., July 10, 1899.

Mr. Quirin, Dear Sir:— The queens you sent me have turned out the yellowest bees in my apiary; are gentle to handle; are large, and well marked.

C. C. Chamberlain.

Blockley, Iowa, July 5, 1899.

Mr. Quirin, Dear Sir:—The queens got of you last year are giving good satisfaction—better than some untested queens I paid $1.00 for to breeders who will sell for no less at any time of year.

Yours truly, Edwin Bevins.

Address all orders to

H. G. Quirin, Parkertown, Erie Co., Ohio.

MONEY-ORDER OFFICE, BELLEVUE.
In writing, mention GLEANINGS.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

QUEENS. Untested, warranted purely mated, after July 1, 55 cts. each; 6 for $3.00. Select tested, $1.00 each; 6 for $5.00. Extra select breeding queens, $2 00 each. The very best of golden Italians. E. A. SEELEY, Bloomer, Ark.
P. O. M. O. Office, Lavaca, Ark.

Fine Clover Honey.

Two 60-lb. cans in a case..............$11.50.
Amber, in barrels.....8c; in kegs.....8½c.
Clover and basswood, half barrels.....9c.

If your crop is short, and you want honey, or you want to know if that honey you buy is pure, and want it analyzed, address

Wm. A. Selser,
10 Vine Street, : Philadelphia, Pa.
Manager The A. I. Root Co.

GOLDEN ITALIAN QUEENS.

Virgins our specialty - - 40c each, or 3 for $1.00.
Gardiner L. Ellis, - - Millsboro, Del.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.
$1.00 Per Year Medina, Ohio

Vol. XXVII. SEPT. 15, 1899. No. 18.

STRAY STRAWS FROM DR. C. C. MILLER

A KINK given by W. H. Pridgen in *Review* is this: The slats to which artificial queen-cells are to be built should be soaked in melted wax until there is no bubbling or frying, before any attempt is made to fasten cups to them.

THAT ADVICE, "Keep your colonies strong," is well worthy of Quinby, the grand old man to whom Doolittle credits it (page 649); but I think it's older than that. The first edition (as well as the last) of Langstroth says: "The essence of all profitable bee-keeping is contained in Oettl's golden rule: *Keep your colonies strong*."

IF DOOLITTLE CELL-CUPS are to be regularly used, why not have them listed as a regular article of bee-supplies? [We have been thinking of having them listed in our catalog. While the making of the cells is a comparatively easy job, it takes experience to make them just right; and as we have learned how to make them acceptable to bees it might be well for us to list them as an article of merchandise.—ED.]

I'VE READ of a wax-worm smaller than the common kind, and within a week have seen it in two apiaries. It has no gallery among the cappings; indeed, I don't know that it has any gallery. Its presence is indicated by the wriggling of one or more young bees unable to leave the cell. Pull out the bee, and at the bottom of the cell is a worm about ½ inch long, slender and very lively. A sort of web is fastened to the young bee.

IS IT SURE that an "extra fancy" grade would have a tendency to "bear" the honey market? There are some who pay an extra price for eggs dated and known to be strictly fresh, and dealers don't complain that it lowers the market price of eggs. [This is the way it struck me at first; but Niver tried to coax me out of that notion. Sometimes I think he is right, and sometimes I think he is all wrong on this particular point.—ED.]

THE PROBABLE REASON why royal jelly is used from queen-cells for Doolittle cups rather than the pap from worker-cells, is that it is so much easier to get it in quantity from the queen-cells. Possibly, however, there may have been a thought of difference. [You are right. At first I thought that, if we could use the food of worker larvæ, it would be quite an advantage; but I have since talked with Doolittle, and it now appears that a single cell-cup containing royal jelly will be more convenient, because it contains food enough for a dozen or more cells, while a worker-cell would contain hardly food enough for one cell.—ED.]

I TRIED H. L. Jones' method of clipping queens (page 641). The queen seemed determined to twist off her leg. Finally, after spending three times as much time as in the usual way, I got her clipped. Then I tried to liberate her "right on the combs by simply taking the weight off her legs," and she ran up my finger, just as she always does when I don't let her run on a leaf. I tried the Jones plan on several other queens, fastening my thumb on the legs instead of the leg, and heading the queen toward the point of my finger, and I feel pretty sure that, for one who hasn't become accustomed to either way, his plan is better than to hold the queen by the thorax. Indeed, I think it likely I shall be a Jones clipper the rest of my life.

"A CAGED QUEEN may be laid at the entrance of any populous colony during the working season, and the bees will cluster over the cage and care for the queen just the same as though she were inside the hive."—*Review*. Two years ago I used a lazier plan than that. I threw a caged old queen at the foot of an apple-tree in the middle of the apiary. A few bees came and clustered on the cage, as they often will. Then I threw another old queen there, and in the course of a few days there were a dozen or so of them. They stayed there for weeks, through rain and shine. An amusing feature was that, although the cluster was never as big as my fist, it swarmed very frequently (of course always returning), sometimes several times in a day.

FOUL-BROOD INSPECTOR N. E France says in a circular giving treatment for pickled brood, "Never make your bees use old black combs." Can it be possible that is meant literally? I have always supposed that for *healthy* bees old black combs were the best. [Inspector France may be right; but if so, it would be the part of wisdom for bee-keepers all over the country generally to discard a half or two-thirds of their combs. This would mean a very expensive change, and would cost the bee-keepers several million dollars if all should make it; but old combs have been used years before, and are used now, continuously, and yet no pickled brood is found, I was going to say, in ninety-nine out of one hundred localities.—ED.]

H. L. JONES clips queens before selling (641). Wouldn't customers object to that who want the queen to fly with the natural swarm? And wouldn't a customer who practiced natural swarming (if that expression may be used), and who didn't know of the clipping, get into trouble with such a queen? His plan of cutting one larger wing a little makes it difficult to notice that she has been clipped, he says, but that's just the trouble. That sort of clipping has fooled me more than once into thinking the queen was not clipped at all. So I want both wings on one side clipped, and pretty short at that. [From a queen-breeder's standpoint I should prefer to clip *a la* Jones; but from a producer's standpoint I should prefer to clip both wings.—ED.]

THAT IDEA of having cards printed in colors to show the different shades of honey is well worth considering. Try the Prang Co. [If I can find time I will try to develop this idea; and yet I have less confidence in it than when I first suggested it in this department. Why? Because I have since been looking at a lot of samples of honey; and for the life of me I do not see how any ink-maker could produce shades of *opaque* color that would at all resemble shades of *transparency* color; or, to put it another way, a liquid or substance through which one can see has a different shade from one of exactly the same color through which one can *not* see. For example, ink in a bottle produces a different effect on the eye than ink when spread on a paper. The shorthand notes from which this is copied are being taken in a bright-red ink; but as I look at the bottle from which the ink is taken (holding it up to the light), it appears to be much lighter in color, giving the effect of a very light wine tint.—ED.]

A HYBRID QUEEN will not do for a breeder, because she is not of fixed type. A first cross will show workers that in looks are pure black, and others that are pure Italian. Yet the majority of hybrids, where Italians have been kept for years, are more nearly uniform in character. While pure Italians may be the best in the world, a persistent breeding from the *best* hybrids would in most apiaries result in great improvement, and just possibly a hybrid strain *might* be established better than pure Italians. At any rate, the man who breeds from his *best* hybrid queen will do better than to breed promiscuously from *all* his hybrids. [Very possibly you are right, and I hope, therefore, you will proceed to develop the possibilities of that one queen whose bees are producing so much more honey than the rest in the yard. I would call them the Miller strain of hybrids. Say, now; if we can get up a rivalry between the queen-breeders of the country, so that they will strive for *business* instead of *color*, we shall have something that will put dollars into the pockets of bee-keepers.—ED.

THAT EDITORIAL, "Honey not Advancing, and Why," p. 652, puts the responsibility just about where it belongs: "Commission houses and honey-buyers, many of them, are offering little if any better prices than ruled in 1897." But you're hardly right in saying, "One, two, or three houses can't advance unless *all* do." Your first statement contradicts that, when you say, "many of them." The fact is that one, two, or more *have* advanced. Each market has always stood more or less independently, and any one can advance its own quotations. Brethren of the commission and buying business, some of you are doing us and yourselves a decided *wrong* in publishing the figures you do. A card handed me since I began this Straw is from M. H. Mendleson, and says: "White honey at a premium here this season. Prices nearly double those of 1897." [On reconsidering, and after hearing the discussion of this same question at the Philadelphia convention, I shall have to acknowledge that you are right. If two or three of the *best* houses advance, and especially if these same houses can get a corner on the market, prices are bound to go up. It is an interesting fact that two or three of the large concerns are now trying to obtain all the honey there is to be had, because it is a scarce article; and it is another interesting fact that there are carloads of honey that are held back awaiting better prices. Mr. York, for instance, editor of the *American Bee Journal*, says he knows of five carloads of fine honey that are awaiting an advance. If some of these large honey-buyers who see this will write to Mr. York, perhaps they can obtain these five carloads *providing* they are willing to make a big enough price. Since attending the Philadelphia convention I am satisfied that the markets must make a sharp advance before very much honey will be seen on the market.—ED.]

A. T. S., Iowa.—After the first swarm is cast, the parent colony is liable to send out a second, third, and possibly a fourth swarm, each one smaller than the one preceding; and these several swarms may follow each other on subsequent days, or there may be an interval of two or three days or a week between the swarms.

PICKINGS

FROM OUR NEIGHBOR'S FIELDS.

By "Stenog."

The torrid days, the chilly nights,
Bespeak th' approach of fall;
The few bright flowers that still remain
Now constitute our all.

* * *

Between a very bad season and preparations for the Philadelphia convention, world-changing events in apiculture are scarce. Old standard subjects, such as wintering, size of hives, etc., are thrashed over with some vigor, but things in general are quite monotonous.

AMERICAN BEE JOURNAL.

M. D. Andes gets drone brood out of combs by setting the frames containing it against a fence and letting young chickens pick the larvæ out. Probably large fowls would knock the combs to pieces.

* * *

On page 532 is a view of a barn owned by Jacob Huffman, of Wisconsin. It is 36×40, and was paid for by the honey crop of one season. In 1885 he sold 14,000 lbs. of extract-honey and 6000 lbs. of comb honey, which sold for $1280. Owing to the cutting-off of basswood timber around him his yields now are not so good.

* * *

Mr. York prints the name of this journal with a hyphen in *Bee-Culture*. Why not use one in *American Bee Journal?* Proper names should be printed as the owner writes them. Surely the hyphen should be omitted in the case cited.

* * *

The value of a question-box has been questioned, as the answers therein are often widely divergent one from another. For all that, I believe in the box, for even the divergence in answers is often a source of new knowledge. Only by getting the position of the moon from points thousands of miles apart on the earth can we determine her distance; and so ultimate truth can be arrived at in some matters only by comparing notes.

* * *

E. E. Hasty, living a short distance north of Toledo, Ohio, reports his bees, Aug. 7, as gathering a fair quality of surplus. He says: "Earl Baker, a young apiarist in the edge of the city, has been harvesting quite a lot—presumably sweet clover, which is plentiful down there."

* * *

Sometimes a correction does not correct. An amusing instance of this kind comes from A. B. Bates, of Missouri. He desires a certain passage to read thus: "The atmosphere above retains the heat, etc., and the warm atmosphere coming in contact with objects of the earth's surface, contract and give off moisture." Of course, the above means nothing, and I suspect Mr. York printed it thus by way of a joke. Try it again, Mr. Bates.

* * *

Mr. J. C. Carnahan, foul-brood inspector of Mesa Co., Col., in writing about foul brood, says: "We have a little foul brood, confined to one end of the valley, but hope to have it soon stamped out. We are using radical measures, hoping the sooner to get rid of it. We burn it—bees, hive, and honey." If every county in the land, where foul brood is known to exist, had an inspector like that, this great scourge could soon be subdued. It seems to some folks that the attempt to save the sound part of an infected colony, and destroy the diseased part, is poor economy.

* * *

W. A. Pryal states that one dealer who has been handling honey for 20 years in San Francisco has, in the past two months, sold more honey than in all his previous business. Honey is now worth there 7 cts., while last season it was only 3.

AMERICAN BEE-KEEPER.

In speaking of the difficulty in making a bee-journal composed of matter that is equally well adapted to the needs of all, the editor well says:

> It is doubtful if ever a preacher or a lecturer has succeeded in addressing even a local assemblage to the entire satisfaction of all his hearers. How much less, then, is it possible for the editor of a bee-paper to make up his journal entirely of matter that will interest and please each one of the vastly greater multitude constituting his audience! That which is of practical value to the bee-keeper of New England or New York is seldom capable of practical application in the hands of a California or Florida subscriber; yet each has equal rights in the paper for which he pays. And, if he is progressive, he will certainly be interested in proportion to the character and extent of the information conveyed through any foreign communication.

* * *

According to the authority of J. M. Hambaugh, California raised, in 1870, 3750 lbs. of honey, and in 1876 the large amount of 3,500,000 lbs. Its product for 1899 would be interesting reading.

* * *

In replying to Mr. York's editorial on the use of cans in preference to barrels for honey, the editor says: "We have no fear but good barrels will stand on their merits, and in extensive apiaries long remain as a package for honey; but with the small bee-keeper, with whom honey-producing is but an avocation, a smaller receptacle will doubtless be more popular."

* * *

Mr. Hill gives a view of a covered apiary he established on the Indian River, Florida. It was simply a double roof supported on upright beams. On the following page is a view of the same apiary after it was struck by the recent hurricane that devastated Porto Rico. The effect, like the hurricane, is "striking." The destruction was complete. When Mr. Hill first saw the ruins he said, heroically, "It's pretty rough on the bee business, but a rather interesting subject for the press. Bring my camera."

* * *

In speaking of the myriads of mosquitoes and sandflies at Blue Hole, the name of the place where Mr. Hill's apiary is situated, he says these winged torments are numerous enough to give the place its name. He says, further, it is a noteworthy fact that the best honey locations are usually found where the insects are most numerous. Among other "drawing cards" that render his place attractive, Mr. Hill mentions snakes. While removing combs of honey for the extractor from the hives in the old house, a yellow snake six feet long dropped with a dull thud at the feet of Mr. Hill and his helpers. The apparent escape of the dreadful reptile seems to have been due to Mr. Hill's "sympathetic nature."

* * *

Replying to an article written by the editor of the *Chilean Bee-keeper*, Mr. R. A. Sanhueza makes a few corrections. He says Italians were introduced into Chile in 1834 instead of 1865. Mr. S. says his bees have averaged, for the past three years, 134 lbs. per colony, and some colonies have yielded a maximum of 182 pounds.

* * *

H. L. Jones, of Australia, says those pests of the hive, laying workers, should not be spoken of in the singular number. He says that on several occasions he has found laying workers present in sufficient numbers to lay over 20,000 eggs within 24 hours. He proved it by placing a Langstroth frame, containing between 7000 and 8000 cells, in the center of a fairly strong colony infested with laying workers, and within 24 hours he found that about three-fourths of the cells had eggs deposited in them, each cell containing from one to a dozen eggs, with an average of at least four eggs to each cell. He concludes that in this hive there must have been some hundreds of laying workers.

GENERAL CORRESPONDENCE

A BAD LEAK.

What Time of the Day do Prime and Second Swarms Come Forth? how shall we Prevent their Escape to the Woods?

BY E. E. HASTY.

And what gets out at the bad leak? Why, swarms of bees leak to the woods when their owner is not watching. And he's not watching because he has got somehow the notion that bees very rarely swarm after two o'clock. Worse than the Dutchman who can't see after four o'clock, he can't see after two o'clock, poor Sapiens Apicus can not.

Apparently bees swarm during the first available three hours after they are *ready;* and that special state of readiness arrives as often one hour as another, *day or night.* The night hours not being available, it follows, as a matter of course, that the three first available hours of the day have not only their own swarms but those properly belonging to the twelve or more hours previous; that is to say, five times their normal number of swarms. The succeeding hours seem destitute *in comparison*, but that does not make afternoon swarming abnormal at all. The colony that gets ready at one o'clock is going to swarm that afternoon, if weather is warm and fine. Can we afford to lose these swarms just because the morning hours put out five times as many? If we have five swarms during the expected hours, that does not make the one swarm due during the unexpected hours any the less valuable, or any smaller as a loss. I am pretty well convinced that the afternoon hours really yield more than their normal number of swarms when the thermometer gets up into the eighties and nineties. Swarms that are *not* quite ready begin to pick up and go.

It is tolerably well known that after-swarms will often start during hours that prime swarms would consider unavailable — very early in the morning, or very late at night — or even occasionally when it is raining slightly. In their case it is not so much readiness as *dander* that determines the moment of starting. The sharpness of the antagonism between the queen who wants to destroy the young princess and the workers who are determined to save her, gets more and more pronounced until the explosive point is reached. Probably those workers who were trying to be neutral in the fuss start first for the door, and the angry queen soon decides to go along rather than continue her useless attack. It may be that keeping these curious facts in mind rather helps on our oblivion to the leakage of some of our best prime swarms. We say, "If now and then an after-swarm does get away, why, they're small affairs anyway."

I chastise myself quite severely for one thing concerning this matter. Ever since I have kept bees I have kept a record of my swarms; and yet until the latter part of this present swarming season I have never put down the hour. If I had only done this the required proof (or disproof) would be a very simple affair. Although so slack about accumulating proof, I have long been aware that the prevalent idea was wrong; and although my statistical horse is a short horse I'll let him trot just as he is.

The ordinary swarming season was famine time at my yard, consequently few swarms, only about 13 previous to June 3. On the day just mentioned I had my mind freshly stirred on the subject by a prime swarm coming out at five o'clock. The next day there were a prime and two after-swarms, the precise hour of which I can not now tell. Same remark applies to two after-swarms on June 6, at which point I resolved to date more precisely all my swarms. The previous day, June 5, a prime swarm came out at 3 P. M. As they clustered in a difficult place, and I wanted to do something else at the time, I conveniently "allowed" that such a late swarm would stay over night any way; but at 4:15 they waved me adieu and went to the woods. On June 7 two prime swarms came out and tangled together at 11 A. M. On June 8 a prime swarm came out at 3 P. M. There were no more seen till June 14, when a prime came out at 4:20 P. M. The next one seen was a very small after-swarm, July 1, also 4:20 P. M. The next one seen was another little one-mouse affair July 28, at 2:15 P. M. Being too small to be worth bothering with, these were left to their own devices. They stayed in cluster the rest of that day and all the next day, and disappeared about noon of the third day. The last swarm, so far, came out August 8, at the orthodox hour of 9:30 A. M.—a pretty good swarm which I was glad to see, because I needed them for a special service.

This record comprises so few swarms and so short a time that the accidental element weighs too heavily. If we draw conclusions from these instances alone we should conclude that bees swarm mostly in the afternoon. And some of these primes may have been primes with virgin queens, and therefore more or less subject to after-swarm rules.

But what shall we do about it? watch as a cat watches a mouse all day long? Not necessarily. Life is too valuable to make it a slavery for so small an object. There are some things, however, in which we can mend matters a little without very much surrender of our free hours. But don't trust much to the eyes of folks who are not bee-folks. A hundred colonies of bees make quite a roar, and send out quite an array of workers right straight along. A layman is quite capable of keeping the apiary under his eye most of the time, and yet allow a swarm to fly and cluster, and he be blissfully unconscious of it all the while—ready to make oath in court that there was no swarm. Worse than that by far, I find that *I* can do the same bat's-eyed exploit myself, if I am thinking of something else, and not loaded for swarms. Am not anxious to figure as a slanderer of the brethren, but I strongly suspect that I am not the only bee-keeper who lets a swarm cluster under his nose (on his beard, as it were) and does not see them. We can see them better by expecting them, and keeping ourselves mentally on duty when at work about the apiary in the afternoon.

But our best resource is to make a careful search of the surrounding trees and other handy clustering-places once or twice in mid-afternoon, and again just before dark. And don't be too sure a late swarm will not go the same afternoon. As a slight further help a little chopping-down of useless and sly hiding-places, a little clearing-out of jungles where one might almost expect a tiger, and a good deal of thinning-out of the twigs of too dense tree-tops, would fix our surroundings so that much less time would suffice to go the rounds.

Richards, O., Aug. 16.

[It has been generally stated as a rule, I believe, that it is not necessary to watch for swarms before 9 A. M. and after 3 P. M.; but I have myself many times seen exceptions to this rule; but those exceptions seem to have been cases where a swarm tried to go forth and was foiled in its attempt by some device of the bee-keeper in the shape of perforated zinc or a clipped queen. After the bees have tried once, and have been compelled to go back, next time they *may* become desperate, and violate *all* rules. In the height of the swarming season we have sometimes found it necessary to go the rounds of our apiary and look over the evergreens surrounding the yard to see if there were any swarms that had come out and clustered without our knowledge. I remember one year, when we were having from six to eight swarms a day, I found it a good idea after dinner to go around the trees to see if I could find a cluster that had come out when we were at dinner; and I have on several occasions found a swarm hanging as quietly as if it had been hanging there all day. If the search had not been made, possibly our only knowledge of these bees being out would have been their final departure for the woods. How we may stop leaks of this kind we may very properly consider.—ED.]

BEE-KEEPING ON THE HOUSETOPS IN CINCINNATI.

Honey on Commission and Outright Sale.

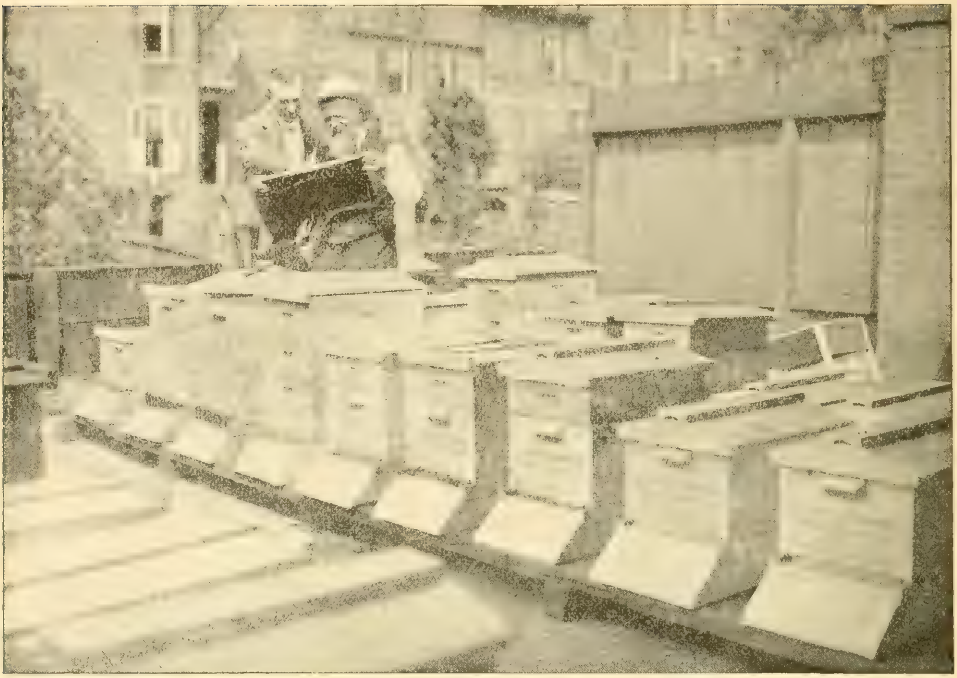
BY FRED W. MUTH.

Friend Ernest:—Thinking it might be of some interest to you as well as the many readers of your esteemed journal, I send you a photo of our apiary, situated on the top of the house. We are not blessed, as many are, with a yard, but have it just as convenient on the roof. The neighborhood is thickly populated, while the bees, being so high (four stories), do not bother any one. From July 1st to 10th they just rolled in sweet-scented clover, which grows so plentifully on the hill-tops that surround this beautiful city.

You will notice we are using eight-frame Dovetailed hives. I find they are easier handled than the Langstroth, but it remains to be seen if they are as cool as the L. is in the hot sun, as our roof is partly in the sun all day.

You will notice Mr. Weber, with a comb of brood in hand. He does enjoy his spare time among his bees. About 25 feet from where the bees now stand Mr. W., some 32 or 33 years ago, while in the employ of my father, assisted in transferring his bees from the old box hives to the then new Langstroth hives; so you see he is no stranger at the business. He bought this business, as well as the house, the 1st of April. He has quite a large retail seed trade, besides doing a nice grocery business. He engaged me to manage the bee-supply and honey department. I have been connected with a wholesale grocery of this city for about ten years as salesman; have always been a lover of bees and the honey business, and after reading the journals for years I think I can make a success.

Cincinnati is quite a market for extracted honey. The old firm sold tons and tons of it. It is not the small consumer who uses the greater part of the honey produced, as so many seem to think. While our city, with its



A CINCINNATI APIARY ON THE HOUSETOP.

immediate surroundings, can well boast of nearly 650,000 people, and a good many eat honey, yet the real consumer is the manufacturer who buys in quantity and buys often

It is a big mistake for bee-keepers to send their honey to commission houses to sell. The reason is, the commission merchant is not posted as to the different qualities and their respective values. They generally take the first offer made on honey, just to close the account. They don't take time, and they haven't the time to look up the trade that buys honey; and then, again, the manufacturer doesn't buy from him unless it is a bargain. The manufacturer does not look to the commission man for his honey, and it is he who ruins the market on extracted as well as comb honey. I will give you an instance:

The other day we had a lot of ten barrels of the finest clover I have seen for a long time. I took a sample and called on several parties. The very first man I called on bought a snap of several barrels the day before from a commission house (the manufacturer tried to tell me how cheap honey was), and at such a price that I felt inclined to buy at those prices myself. The bee-keeper, I think, was hurt more by that sale than I, because when Mr. Commission Merchant takes out his drayage, commission, and I don't know what else, I think the bee-man had very little left. Then, again, the quotations the bee-keeper gets from him are entirely different from what his net proceeds are when he receives his check for his consignment.

We do not handle honey on commission, but buy for cash. When the bee-keeper sends his honey to us he gets exactly what we quoted to him. There is no drayage and commission and snap sales.

Cincinnati, O., Aug. 2.

[Perhaps I should explain that C. H. W. Weber, an old neighbor of the late Charles F. Muth, bought out the business and good will of the firm of C. F. Muth & Son. Another son (not the one with the old firm), who has been away from home for some time, and who has been connected with the grocery business for the last five or six years, but who worked along with his father years ago, has been retained as manager of the honey business for Mr. Weber. This is Mr. Fred W. Muth, a young man of sterling qualities and of considerable business push and sagacity. As did his father, he believes in the principle of buying honey outright, and that is the policy to be pursued by Mr. Weber.

Some little time ago I spoke of the visit that the junior Muth made here to get "pointers" on modern bee-supplies and modern bee-keeping. It was this same gentleman who was associated with his father years ago, when the latter bought honey by the carload and even by the boatload. Mr. Muth told me that his father would have at times as much as $40,000 worth of honey on hand, most of which was sold to manufacturers. The senior Muth did more than any one else, perhaps, to introduce honey among bakers; and now it has come to pass that some of the large baking concerns are using cheap honey in ten-carload lots. But real honey they must have and will have. Mr. Muth told us if there is the least amount of glucose in any of the honey it "spoils the cake." The consequence is, the manufacturers require an absolutely pure article, and they have come to learn where they can buy such goods; and, what is more, they can not very well be fooled either, for they know adulterated honey as soon as they taste it.

With regard to keeping bees on housetops, this is done in quite a number of cities. Provision needs to be made, however, for reasonable shade, otherwise combs are liable to melt down. The Muths have kept bees on the roofs of their buildings for years; in fact, if I understand it rightly, it has been the only place where they could keep bees, as land, especially in the business portions, is so very expensive. And then there is another point; namely, that, when bees are put up four or five stories high, they will not interfere with passers-by on the streets below. But during times of robbing, if some commission house or candy-store should leave sweets exposed, there would be music in the air — music of humming bees, of frightened customers, and of irate dealers. Just how this problem is managed, we leave for Mr. Muth to explain at some future time.—ED.]

HONEY IN PLAIN SECTIONS.

The Danzenbaker Hive; those 4×5×1⅜ Sections v. the Old Style 4¼×4¼.

BY PERCY ORTON.

As a producer and seller of honey, and as a reader of GLEANINGS, I should like to have the following questions answered through that journal:

1. What size of section did W. H. Swoap use to realize 2 cts. more per lb. for his honey, page 541?

2. How under the sun do you expect to get worker combs built by bees from starters in those Draper barns? You know such deep combs would stretch, and a very large amount would be drone comb. Bee-keepers can not afford to buy full sheets of foundation for such large frames.

3. You adopted Danzenbaker's cover and bottom-board for your lock-corner hives; why not the body and frames? Bees build fine worker combs from half-inch starters in his frames. His supers I consider the best on the market. Honey made in Danzy sections 4×5×1⅜, in connection with the fence separators, I am selling for 13 cts. each, buckwheat honey at that. Last year I sold 4¼×4¼×1$\frac{15}{16}$ sections in the same market for 8 cts. each. We have just as good a crop of buckwheat as in 1898. You can see the difference between a back number and something up to date. I think all 4¼×4¼ sections should be gathered up this fall, taken to some swamp, and stamped out of sight in the mud. The 4¼ section looks like a squatty old woman. Let us all adopt for 1900 the tall American lady, the 4×5×1⅜-inch section.

4. What hive does Vernon Burt prefer? also, what style of plain sections, page 544? He seems to be a very successful comb-honey producer. For my own benefit I should like his views. I think it would help others.

5. That man Brown, page 535, is mistaken when he says the Danzy hive has too much "kindling-wood" about it. None too much, friend Brown, to produce the finest sections of honey. "The more haste the less speed." Try some more of those hives, and then apologize to Mr. Danzenbaker.

In reporting my last winter's loss of bees, which I have not done before, it makes me think of an old elder in the Presbyterian Church in our village, who went down on the river flats to see his buckwheat after an early frost in the fall, which had ruined it. On his way back to the house he met his son Burr, and said, "We had a *noble* frost last night, Burr." I don't know that I felt as Bro. B. did when I examined my bees last April, and found I had had a "noble" winter loss — 63 dead out of 65 colonies; but I am happy to say that I have at this date 58 which are working on buckwheat. I am using 50 ten-frame chaff hives and 15 Danzy. I am going to buy 35 more this winter.

Northampton, N. Y., Aug. 12, 1899.

[1. W. H. Swoap probably referred to 4¼×4¼ plain sections, because we find that the only plain sections he ever got of us were of that size. 2. If the foundation is medium brood it ought not to stretch — at least not enough to cause drone-cells. At certain seasons and under certain conditions bees will make *worker* comb instead of drone; but during the swarming season I should expect a good deal of drone, and it might be necessary then to cut the comb out and use it for chunk honey, as does H. R. Boardman. As to how to get the bees to build all worker comb, I would refer you to Mr. Hutchinson's "Advanced Bee-keeping." 3. We are not doing the adopting; but if bee-keepers want the Danzy hive we are prepared to let them have it. A good many favorable reports have been so far received regarding it—especially for the production of comb honey. Mr. Vernon Burt, our neighbor bee-keeper, is very partial to it, and says he will discard the eight and ten frame Langstroth hives for the Danzy, pure and simple. 4. This question is partly answered by 3. Mr. Burt prefers plain sections, 4×5 Danzy, to the 3⅝×5. In corroboration, see article from T. K. Massie, just following.—ED.]

THE DANZY HIVE.

Also Something about the Danzy Super, 4×5 Plain Sections, and Fence Separators.

BY T. K. MASSIE.

Wishing to see exact justice meted out to all, and being wholly disinterested, having no personal interests at stake, I wish to say a few words in behalf of the Danzenbaker hive, 4×5 plain sections, etc. I have 40 of the "Danzy" hives in use this season, and unhesitatingly pronounce them the best that have so far been offered to the bee-keeping fraternity, combining more points of excellence or superiority than any other hive. The 4×5 plain sections and fence separators are a decided success. The combs are built solid to the wood all around, and their shape enables us to pack them solid in the shipping-cases, looking, when packed, like a solid block of wood. I have just hauled, on a common road wagon, over 35 miles of the roughest kind of road, 200 of these sections, and did not have a single one broken. They come off the hive nice and clean, saving the time and labor of scraping them.

Our honey-flow was very scant, and came in very slowly (I shall not average 10 lbs. to the colony), which caused quite a number of cells around the edges to be left empty. But for this defect my sections would be perfect. The 200 I brought here to our grocery I exposed for sale by the side of 80 of the 4¼×4¼ sections. People are daily examining this honey, and the general exclamation is, "Well, that is the finest honey I ever saw. What is the price of it?" I answer, "Your choice of *this* grade (the 4¼ sections) for 12½ cents per section, or your choice of *this* grade (the 4×5 section) for 15 cents per section." The answer almost invariably is, "Well, I will take"—two, four, or more, as the case may be, of the larger boxes, meaning the 4×5 sections. I had some nice white combs that I cut and fitted into the 4¼ sections when putting on sections this season. I selected five of these, which were filled out with honey solid to the wood, making a very plump section, weighing from ½ to 2½ ounces more than the 4×5 sections which have the empty cells next to the wood. I priced these at 15 cents. My customers are daily examining and "hefting" them, but take the 4×5 section of less weight at the same price. Only yesterday I showed a customer that these "square boxes" weighed the more; but after seeing them weighed he said, "I believe I prefer these larger boxes, for they look the best to me." After this no one can give me the 4¼ section.

On page 510 you say that, in your revision of the A B C of Bee Culture, you are giving, among others, a description of the Danzenbaker hive. I hope you will give it *first* place. Its merits deserve this. On page 544 A. I. R. says that Vernon Burt had the handsomest sections he ever saw — never dreamed of any thing so nice. Were not these sections produced in the Danzy hive, Danzy super, sections, and fences? I don't mean to criticise friend A. I. R., for his age places him where we can not expect too much of him, but I am sure he will be only too glad to place credit where it properly belongs.

On page 535, E. W. Brown, the man whose brain has become so delirious with fever that, to arouse him to a state of consciousness, even his wife has to shout "Bees!" at him (I wonder if she has to accompany the shout with the gentle reminder of a sting) says he got 12½ cents for his sections, which "lie down like a brick on its edge," and only 10 cts. for the Danzy section. I have tried sections laid down on their edges, and find this shape or position, if you please, so much out of harmony with the laws governing the economy and workings of the bees in the hive, which fact every bee-keeper knows, that I can not accept the unsupported statement of Mr. B. as a fact. I do not mean to say he would knowingly misrepresent facts, but we notice he calls them "my special fences," "my sections," etc., thus mixing the elements of self-interest with that delirious state of mind peculiar to all fever patients to such an extent that he is simply rendered incapable of acting as an impartial judge. Mr. Aiken, not being self-interested, and not having such a bad case of fever, is in a position to give an impartial decision.

I used a few starters of the deep-cell foundation this season, and find that the bees commenced work on and finished them, building the comb solid to the wood all around, sooner than they did the sections containing full sheets of the ordinary foundation. From this small experience I should think the deep cell far superior to the ordinary foundation, and would suggest to Mr. Brown that, as he uses only starters, he use this foundation in future. I think it will help him out.

On pages 537 and 546 you illustrate and describe the Draper hive, the "barn" that Dr. Miller seems to be trying to press to the front. It may seem preposterous for a small man like myself to attempt to criticise so large a man as Dr. M.; but as he is the one who "don't know," I will merely say that, when I do know a thing, I know it just as positively as any one else can know it; and I do know that a Langstroth frame 2⅛ inches deeper than the regular size will require to be wired. I do know that a wired frame is an expensive nuisance. I have over a thousand brood-frames so straight and smooth that they will interchange from one hive to another with perfect ease, and not one of them is wired. I do know that a large hive, if constructed on the right principles (the correct principles must be brought out in the size and style of the frame), is decidedly the best the whole year round; but the coming large hive is not the "barn." I would be willing to let the doctor "select any location and any number of barns" he may wish, and give me the same location, and an equal number of Danzy hives to run on my plan of tiering up, and guarantee better results than he can obtain with his barns. I will guarantee that, at the end of the trial, he will "know" to a certainty at least one thing.

My object in writing this is to speak a word in behalf of justice to the parties personally interested, and to benefit, if I can, the bee-keeping public. Practical experience of bee-keepers will sweep all opposition to the Danzy hive, super, fence separators, and plain 4×5 sections into oblivion. I will use the Danzy hive, super, 4×5 plain sections, etc., until something better is invented.

Bramwell, W. Va., Aug. 10.

[The sections referred to by A. I. R., or a part of them at least, came from the Danzenbaker hive, and were 4×5. The other part came from the regular Dovetailed hive. Both lots, as I saw them, were equally well filled. Indeed, it could hardly be otherwise; for under the same conditions a 4¼ square would be as well filled as one 4×5 tall.

I may add that Vernon Burt is very much pleased with the Danzenbaker hive and the 4×5 section, and says he will adopt them in future unless he finds something better.

Yes, the Danzenbaker hive is mentioned in the new edition of our A B C of Bee Culture, along with the Dovetailed, Heddon, and Dadant; but I did not and do not now think it would have been wise to give it first position, for it has not yet been tested sufficiently to give it that distinction. The hive that is given that honor is the regular eight-frame Langstroth; and we are safe in giving it such prominence, because it has been tested in all localities by bee-keepers of every shade of opinion, with the greatest satisfaction. The Danzenbaker hive may be a better one; but as publisher and manufacturer we can not afford to put it in the lead until it has pushed itself to a point where it may be recognized as a leader. If the hive is a good thing, and if it is certainly superior to the regular Langstroth, no fear need be entertained as to its future. If it is as good a hive as the regular eight-frame Langstroth, but no better, it will have hard work to push the latter "to the wall."

Pres. Whitcomb, at the Philadelphia convention, said that, in his opinion, any standard hive, having movable frames, was as good as another. While this statement needs some modification, yet there is no denying the fact that there is a great deal of truth in it. It is W. L. Coggshall who puts locality first, the man second, and the hive last; but a poor or inconvenient hive, even though it has movable frames, may entail upon the bee-keeper in a good locality a great deal of unnecessary labor, to say nothing of the fact that the honey produced would not be in as marketable a shape as that produced in a better hive.—Ed.]

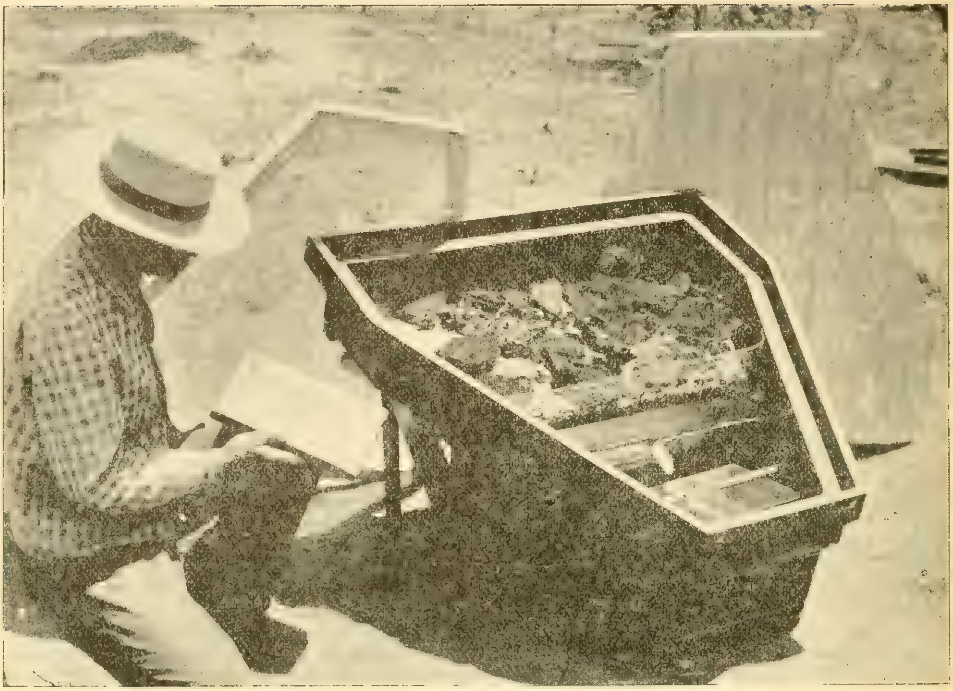
RAMBLE 175.

Practical Work; a Valuable Article.

BY RAMBLER.

From my observations when I come in contact with bee-keepers I find that they possess more or less ingenuity, and the many little inventions will attest this fact; and that there have been no great and far-reaching inventions is because our industry is not great and far-reaching. The old adage, that "water will never rise higher than its source," has a capital example in the inventions for the bee-keeping industry. The source, bee-keeping, is practiced by but a small number of the great human family; and an invention, however great for its class, is not for wide application. The bee-keeping improvements have been in the line of small things, and it is the multitude of these that have been the factor of progress.

RAMBLER'S UP-TO-DATE HONEY-HOUSE.



RAMBLER'S SIDE-DELIVERY SOLAR WAX-EXTRACTOR.

The spirit of this genius seemed to possess the Rambler early in the season, and chained him down to steady and delightful work for many weeks, and under it all were the hopes of a little honey-flow that would come as a recompense for the toil. As a result of the little genius that came to the surface, the things herewith illustrated are now in existence; and as some one of them may be of value to the fraternity I will describe.

Perhaps a few readers will remember that my apiary was illustrated and described in GLEANINGS for Sept. 1, 1898, and on page 650 was an illustration of my makeshift honey-house — rough poles and gunny sacks. I promised at the time to show something better some time, and now that "some time" has arrived, and here is a photo of the affair.

This is my up-to-date and a little ahead-of-date portable honey-house. It is ten feet in diameter; an octagon; the floor is made in triangular sections, with the points all to the center. It is made altogether in sections and panels, and is strongly put together with carriage-bolts. A few minutes' work with a wrench, and it is ready to be loaded upon a wagon.

Roofing felt is used for a cover, and it is well ventilated by windows upon the four sides. The front window has a revolving screen; the windows at the sides are put in in diamond shape, and have Porter honey-house escapes. At the upper points there is a small window in the door, but I dispense with a screen door. I have seen many screen doors to honey-houses, and they are always more or less a nuisance. During the extracting season scores of bees are always dancing before the screen; and when it is opened, scores dodge into the honey-house and into the honey. I am aware that would not trouble some bee-keepers; but it troubles me, and I prefer to put my screen somewhere else, and have them in windows of generous size; then when the door is opened the bees are not there to bother.

By following an octagon style of architecture I get a very strong building, and it can never get lop-sided as the most of the square buildings do. But I will leave the house to your consideration. If you blow against it, it will stand. The tank, and the man with a Daisy wheelbarrow, are the necessary adjuncts.

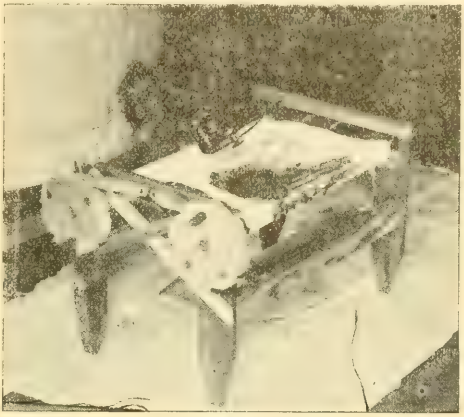
The next device that I have undertaken to have up to date and a little ahead of date is the sun wax extractor; and the one presented in the accompanying half-tone, like my honey-house, had a rude forerunner which was illustrated in GLEANINGS for Jan. 15, 1899. I believe I am the first to work out a side-delivery extractor; and my reason for working along this line is that honey and wax run off quicker, and there is not that damming-up at the lower end as there is in a long and narrow pan. I have no doubt that the majority of bee-men will prefer the old way, for the old-style extractors are cheaper, and easier in construction; but the limited trial that I have given this leads me to think that the progressive bee-keeper should be satisfied with it.

As the wax runs down from the melting-pan it is concentrated into the molding-pan at the smaller end. To operate this machine I place the sash and glass in position over the cappings, which nearly fill the melting-tray. I place over the sash the protecting cover, but draw it down so as to expose only about three inches of the upper portion of the cappings. By gradually pulling the cover down, the honey is nearly all driven out into the long round-bottomed tin tray below. A little hooked wire will be noticed in the end of this pan. This connects with a cork and an orifice by which the honey can be drawn off into a pan below, which is not shown. This first honey that is drawn off is not discolored nor in any way injured by the sun's heat. Now take the shade off and set it aside; cork the orifice and let the remaining honey and wax go into the long pan. It will soon overflow into the caking-pan below. This pan will hold about 15 lbs. of wax. Wax taken out of the upper pan will have more or less dross on the bottom; but when run into this caking pan the bottom of the cake is as clean as the top, as will be seen from the appearance of the cake in the hands of the operator.

While rendering old combs I nearly fill the first long pan with water. The wax soon overflows, and I find it necessary to allow it to run through a small supplementary tray which I hang to the upper portion of the caking-pan. There is a sort of black gummy substance that escapes the first pan, and is caught in this one, leaving the wax, even from old comb, clean from dross. The caking-pan is supported from the top, as will be seen, and it always retains its level when the body of the extractor is tilted at different levels. Although I have rendered out only about 30 lbs. of wax in this extractor, it works equal to my expectations. The honey and wax are run off into separate pans, which I think is a new feature in sun extractors. It is, perhaps, more applicable to a sunny climate like this than it would be in a cloudy and cool one like the far East.

When the sun wax-extractor was completed and out of the way, and my honey-house built as far as the exigencies of the season would allow, the honey-extractor placed within, and the tank without, and a hole bored through the floor in order to form a connection, I then began the study of honey-strainers. I have used cheese-cloth to a great extent; but a cheese-cloth strainer, while it is the cheapest and handiest thing that can be used, will clog; and when a paddle is used to free the bottom of the little particles, some of them are ground through into the honey, and then it soon clogs again, and has to be changed for a clean one.

I have also used the gravity strainer; but under rapid work at the extractor the little particles will not all rise to the top; and if there is a screen placed at the bottom it will clog, and then there is vexation again; and at the best there are a lot of fine particles that get into the tank, to be skimmed off afterward. In order to match my honey-house and sun extractor, and have a strainer up to date and a little ahead of date, I considered the matter with intensity; and while I was under this intense strain an idea popped into my head all of a sudden. I grasped my saw and plane, and in two hours had a strainer that is away ahead of date; and the joke of it is, it is so simple that it is a wonder we had not thought of it before. Of course, I present you a photo of it, and you will note that it is made of the old stand-by, cheese-cloth, and the cloth in this one is half a yard wide and three yards long. This band of cloth is attached to rollers. The rollers are about an inch in diameter, square or round as you please, and three wire nails with their heads cut off are driven in and slightly bent. Upon these hook the end of the band; now wind up, and place that roller in the little frame, and next to the extractor attach the other end to the other roller in like manner, and you are ready for business. The ratchets on the end of the rollers hold the cloth at any tension, and the little pieces projecting from the end-bars hold the sides of the cloth from sagging in that direction. When the strainer clogs, give the front roller a turn, at the same time loosening the rear roller, and a new surface of cloth is presented, and the honey goes merrily on. A shallow pan catches the honey, and conducts it to the tank. All of the debris will wind up on the roller, and this roller should be at least an inch higher than its mate. Some pieces of dirt will drop off from this roller, and a little pan of some sort should be placed beneath it as shown in the half-tone. As this strainer has not been crowded with work this season, I am not sure that three yards are too much or not enough. At any rate, it is cheap material, and any amount can be used. The rollers are hung in slots so they can be easily removed, and the cloth taken off and washed.



RAMBLER'S IMPROVED HONEY-STRAINER.

I have more nice new things that will please the fraternity; but I think this is about all you can stand at this time, and I shall have to ask you to wait until the next issue for the rest.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE.

"WHY DID YOU WAIT, DEAR BROTHER?" YELLOW BANDS.

On page 601 of Aug. 15th Gleanings, Dr. Miller says he is waiting for me to answer a question he asked me in the *American Bee Journal*, which was something about my waiting till this late day about calling attention to the fact that the bands (or, more properly speaking, the horny scale) on the three first segments of worker bees, brought forth by a queen imported from Italy, were not yellow as to color, properly speaking, but more nearly maroon. Well, I am sorry to keep the good doctor waiting so long; but, writing even as much as I do, I can not tell every thing at once, nor in one article. This reminds me of something ex-Governor St. John, of Kansas, once said when he was speaking on temperance and the prohibition of the liquor-traffic, in the town hall here in Borodino. In his address he alluded several times to the Democratic and Republican parties, and each time named the Democratic party first. After a little a man who was a Democrat, and somewhat under the influence of liquor, called out, "Say, Mister, why do you insist on putting the Democratic party first every time?" "Because I can not speak the name of both parties at once," was the prompt reply. And so, Dr. M., one of the reasons why I had not written on this color matter of late was because I could not write of that and how to secure a large yield of honey, with no desire on the part of the bees to swarm, at the same time, with the same words.

I wonder where the good doctor was in the early seventies. Or has he forgotten all about the discussion of this "yellow band" matter at that time? Has he forgotten, or did he ever hear any thing about how "no Chinese walls or snow clad Alps" could keep the bees in Italy from mingling with other bees in the countries round about these so-called *pure* Italians? I have not time to go over musty volumes at this season of the year; but all of those discussions are impressed on my memory, myself taking "a hand" in them to a greater or less extent. It was fully proven at that time that the Italians are not a pure race, and yet the great mass of bee-keepers have gone on calling them "pure" just the same—myself calling attention to their *not* being pure occasionally, as such comment was called forth. And now the doctor wants to know why I have waited so long about saying any thing.

Again, at another time the dissatisfaction ran so high that A. I. Root came out in his A B C book, and in Gleanings, and told how these imported bees must be placed on the window, after first being filled with honey, in order that they could show their three yellow (?) bands, and thus be told from the "two-banded" hybrids. This helped me out, and I then showed that the poorest specimen of a hybrid which showed any yellow or maroon coloring on any *one* of the horny scales to the abdomen would show it on *three*, if thus filled with honey, and placed on a window. And so it went on, I always standing out against a purity which could not be told without such a minute scrutiny, and a color that could not be told as yellow only as a full sac of honey and the golden sunshine from beyond the window must turn the maroon into gold. To be sure, I have not *harped* on these matters, for the very reason Editor Root gives on page 577 when he says, "But it seems to me we are in danger of splitting hairs on an unimportant point." And this brings me to my third reason for calling attention to this matter at "this late day," as the doctor puts it, or at this time, as I would put it if I wished to be correct. Of course, all know that the color of bees should have very little to do with their desirability, for it is the *queen* that gives the worker bees that will give the *very best results in honey*, that the practical bee-keeper is after, as the *desirable* bee. And we have been taught for the past quarter of a century that the Italian bee is *just the bee* to give the best results in honey, or is the most desirable.

But how was any purchaser to know whether the queen he received was Italian or not? By the markings of her worker progeny. And what were these markings? "Oh! any thing, almost, so long as they are good workers," was an idea which Bro. James Heddon brought out when he advertised and sold hybrids as the best working bee. And so the nice points about bands and colorings were forgotten for a time; therefore there was no need of writing on these points for some years. But for the past five years this matter of "markings" has again forged to the front, and the low rumblings of dissatisfaction first heard have almost reached the fury of a storm, and parties are being denounced for lying about the markings, purity, and color of their bees, and thus an *unimportant* matter has become an *important* one. Now, don't you see, doctor, why I tried to call you out at this time (on a matter of *importance*) instead of asking censorious or hypercritical questions?

It is just like this: Suppose I start out to get subscribers for Gleanings. The important part of Gleanings is what we find in the reading-matter it contains, not in the color of its covers. And I secure subscribers for the matter contained in the type as set up, telling the parties who give me their subscriptions that it does not matter any thing about the cover it has on, nor whether it has any cover at all, so long as the important part—the good, practical things the type tells us about — are there all right. Any one can see that no one will be any thing but satisfied with Gleanings, no matter what the color of the cover, so long as the high quality of the reading-matter is kept up. Hence, so far, the color of the cover is an "unimportant point." But suppose I tell the subscribers I secure that Gleanings is the best bee-paper published, and that it can be told from the rest, or poorer bee-papers, by the *color* of its cover, and that they can always know they have GLEANINGS in its purity (?), that best paper in the world, by its greenish-yellow cover, and they believe me. Then the *cover* of GLEANINGS is changed from an unimportant point to an *important* one; and should the publishers send it out in a red or blue cover, I should be denounced as a liar and a fraud, no matter how good its contents, and no matter how much I shouted something about being "in danger of splitting hairs," etc. And this latter position is just where we are to-day regarding Italian bees, if the letters I am receiving are any criterion to go by; and rather than have our queen-breeders denounced as frauds and liars, I started out to have a little light shed on what is to-day an important matter, the *coloring* and *purity* of Italian bees.

[I do not know whether I ought to say any thing on this question or not. I partly agree with friend Doolittle, and I partly disagree; but as I believe the question of color of Italians, whether maroon or yellow, is unimportant, I ought to practice what I preach. But why unimportant? We sell anywhere from $2000 to $3000 worth of queens every season; and the way orders have poured in, it is evident we shall sell more this year than ever before. If there has been a complaint coming in to us with regard to this color matter, I do not remember to have seen it. Why friend Doolittle should have received them and we not, is a conundrum unless it is upon the score of "locality," as Dr. Mason would say.

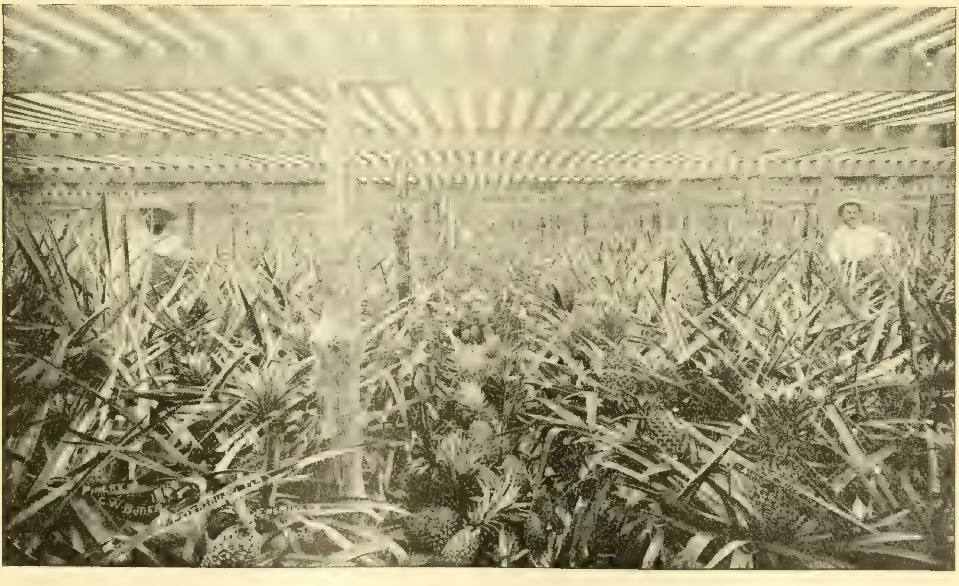
I will say this much: I agree with friend Doolittle, that the only way to determine the purity of Italians is by their markings; and I am rather of the opinion that he is right in saying that placing bees on a window, before the light, is an extreme and perhaps unreliable test for the determination of the purity of the bees in question.—ED.]

HEADS OF GRAIN FROM DIFFERENT FIELDS

HOW THEY GROW PINEAPPLES ON THE WEST COAST OF FLORIDA.

BY J. M. LASSITER.

Mr. A. I. Root:—I take the liberty of sending you a small crate of pineapples. I wanted to send them so you could have them for a dinner July 4th, but there were none ripe at that time, so I hope they will suit you, even if they are a little late. I had one that weighed as much as these two, but it was of ugly shape, and such as would not ship well. I want to send you a photo of the pickers in the pinery picking the fruit for shipment. I did not try to send the largest, by any means. I wanted to send something that would taste nice and look fairly well. There are about one and a half acres in this patch. The pines that are raised in this vicinity are so large that it is necessary to support them by tying them to the shade-slats overhead. You will see the owner standing at the left in the photo. He is 5 ft. 9 inches tall, so you can see about



GROWING PINEAPPLES ON THE WEST COAST OF FLORIDA.

how tall they grow. You can tell also about the size of the fruit.

This photo shows the pickers at work. You will notice there are a lot of apples piled in the walk way. Plants such as were on top of yours sell for from 10 to 25 cts. each.

St. Petersburg, Fla.

[I had a special purpose in submitting this to the readers of GLEANINGS. It is on account of the pineapple shade. This shade is made of slats two or three inches wide. The openings are of the same width as the slats, so that, during the hottest weather in summer, one half of the plantation is in the shade, for we have just half of the sun's rays cut off. This shade, however, permits the rain to strike the plants just about as if there were no shade, or at least I suppose it does. But its principal office, if I am correct, is to insure protection during a frost or freeze. I visited several of these covered pineries, and many times the slatted roof is all the protection needed to save the plants and crop. When the weather is *very* severe, however, it is not a very difficult matter to cover the whole top with coarse bagging or cheap cotton cloth; then by having several fires inside you are proof against damage, even at such a time as the great freeze at the time of my visit several years ago. Similar structures are being used in Florida and California, for orange-trees. Of course, they have to be made higher to protect the trees. In California there is one single orange-grove covering several acres, all protected by a slatted roof, and it has been my impression for some years that during the severe heat of July and August many fruits here in the North would be greatly benefited by this partial shade. It is well known that the finest gooseberries are grown where partly shaded by trees; and such a slatted structure has been found to be very serviceable for them. During our present severe drouth I have been studying a good deal in regard to a similar structure for growing strawberry-plants. I think such a shade would be just about what is wanted.—A. I. R.]

HONEY-DEW; CONDITIONS FOR HONEY-FLOW.

Honey-dew is very plentiful in certain seasons in the mountains above us. Cowboys riding through the brush, salting cattle, will have their leggings, and the legs, manes, and tails of their horses, all in a smear, as though they had waded through syrup. At Grizzly Flats I stood between the rising sun and an oak-tree, and could see the dew falling from the tree like a mist, till the sun was fairly up, when it ceased. Leaves of manzanita were covered with the sugar, thicker than the leaf itself. These bushes were out in the open, so that the dew could not have fallen on them.

The proper conditions for basswood honey I know nothing about; but for all kinds of honey, *with us*, the nights must be cool, so there is dew, and the days hot, to produce sugar. If I go out among the bees early in the morning, and the grass is dry, I know there is no honey coming in. If my shoes are wet I know, without looking, that the bees are then bringing in honey. Very early in the season, while the snow is still on the ground, the manzanita on the warm south slopes of the hills will come out in blossom, and the blossoms will be full of dew, but it is not sweet, nor are the blossoms fragrant. Now let the sun come out hot, and the flowers send out their honey-like smell for yards, while the dew in the cells tastes like honey itself. The sun's heat develops the sugar, and the dew dissolves it, and the honey-bee that gets around before the sun's rays evaporate it secures it.

I started with 50 stands in 1899; have about 125 now; have taken off about 2000 lbs. of extracted and 500 lbs. of comb honey. I expect to take from 500 to 1000 lbs. more from blue tarweed. I think the "Rambler" is right in stating that the supply on this coast will not exceed the local demand; but then there is the glucose-barrel always on tap, so honey is not apt to advance in price.

E. A. SCHAEFFLE.

Murphys, Cal., Aug. 9, 1899.

WHAT KILLED THE QUEENS?

I have lost a great many queens this season, and can not account for it. A colony will be working all right, and the queen laying in fine shape, when all of a sudden I find them queenless, and no queen-cells started. I have lost over 40 queens in an apiary of 200 stands since spring, and the majority have failed to raise a new queen. My hives are 4 feet apart one way by 8 the other. In some instances I have introduced young queens or cells, and in due time they would begin laying, when all at once they would be gone. Can you give me any information on the matter, from what I have written you?

The honey crop is very short here this season, and I have had a hard time in getting my bees to go above, even when I had queens. This yard is one I brought up from New Mexico last spring; and when the honey-flow began I had the bees all in good condition for work. J. E. GAUGER.

La Junta, Col., Aug. 9.

[If you were losing a very large percentage of the virgins, I should say that some sort of bee-eating bird like the king-bird or bee-martin was responsible for the mischief; but if your *laying* queens are disappearing at such a rapid rate, it is something out of the ordinary, and I am sorry that I am not bee-keeper enough to give you an answer, and I therefore call upon our readers.—ED.]

GETTING BASSWOODS TO GERMINATE; FRUIT-GROWING IN THE SAN JACINTO VALLEY, CALIFORNIA.

Mr. Root:—You ask some nurseryman to tell about getting tough-shell seed to start. I am not a nurseryman, but have had some experience in past years while living in Missouri, growing osage-orange plants. There the apples mature, and we gather the seed, and it will not sprout by nature. If it did it would be a great nuisance. To sprout the seed I put it into a box. I then poured as much hot water on the seed as would make it like a bran mash. Then I would cover it with an old quilt, and repeat every day until the seed sprouted. It took about ten days, stirring or mixing the seed thoroughly each day as I wet it, so as to have all the seed sprout as near the same time as possible. Some of the seeds would have sprouts nearly an inch long before all would crack open.

In planting I would take some seed from the box, letting it dry a little so as not to stick. Then I made paper funnels long enough so a man would not have to stoop so much in distributing the seed nicely in the rows, so as not to injure the sprouts. When ready to plant, it makes lively work where one plants several acres. I write this that you may have one of the many ways of getting tough-shell seed to grow.

It now looks as if we should lose nearly all if not all of our bees by reason of the drouth. Irrigation does not seem to supply the nectar that winter rains do. Still, we might be worse off, as we shall receive nearly or quite $100,000 for our dried fruit in the valley this year; so you see the push of Young America has been busy in the San Jacinto Valley since you visited us. H. J. MORSE.

Hemet, Cal., Aug. 12.

BLACKS VS. ITALIANS.

I had a more favorable opportunity last season to compare the merits of the blacks and Italians and their numerous crosses than I had before in forty years' experience in bee culture. The winter previous was very mild, and all the bees came out in March in good condition; and as fast as they began to crowd in the hives I gave them more room by adding empty frames, and kept it up for eight months. The bees were in ten-frame hives; and when the hive was full of bees I would lift the two outside frames on each side into an empty super, placing them directly over the four middle frames, then filling the empty space above and below with empty frames. Then as fast as they increased in bees I moved the old combs apart and inserted the empty ones, first moving those in the lower hive, then in the super, until the space was filled; then I would add another super of ten frames as needed. None of the black bees made over one superful, and all of the cross-breeds made two superfuls. None of the Italians made less than three superfuls, and several of them four superfuls. Any one blindfolded could tell the grade of the bees by simply lifting the hives.

The black queens occupied but one set of ten frames of the improved Langstroth size, while the cross-breeds occupied part of two hives, and the Italians all of two. There were leather-colored and straw-colored Italian bees, and the straw colored ones proved to be the better. HENRY BIDWELL.

Valley Center, Kan., July 30.

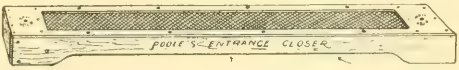
CONDITIONS UNDER WHICH CLOVER DOES NOT YIELD.

I see in your Aug. 15th number one of the old-time bee-keepers wonders why, when white clover bloomed so finely, we did not get any honey this season. If any of you folks ever see a honey-flow when clover is nearly all killed, and spring opens wet, and the new plant comes on and blooms freely on account of a wet spring bringing it to that state, you are ahead of me. If my experience is of any value it is the second season when clover yields honey, and not the *first*. I said, as E. T. Flanagan can tell you, we should get little or no clover honey, as far ahead as last March; and when clover came into bloom I still stuck to it, though many laughed at me, and we did not get it either; and, by the way, this is the only time I ever saw the fields full of bloom; and no honey, as you often hear of, is obtained under these conditions. Study your plants as well as bees, or you can not be successful.

D. D. HAMMOND.

Malone, Ia, Aug. 17, 1899.

A SIMPLE ENTRANCE-CLOSER.



I send you a model of an entrance-closer. I have used them for several years, but have not seen them advertised in any catalog. The one I sent is a little short. On moving a bee-hive they can be nailed over the entrance, and the bees will have plenty of air. They are good in hot weather. JEROME POOLE.

Rockport, Mass.

DRAPER BARNS EIGHT FRAMES WIDE.

I see that GLEANINGS for July 15 describes the Draper barns, and also gives an illustration of one. I am sure I don't want such a hive, neither do I want the regular ten-frame hive; but it seems to me that an eight-frame hive, with frames the depth of those in the Draper barns, would be a very desirable hive, both for breeding and for wintering. Such a hive would have about the same comb surface as a regular ten-frame hive, and it would suit me a great deal better than to use the two extra combs in order to get it. I use mostly the eight-frame hive; and the only drawback I find with them is that they are liable to have a scant amount of stores for winter. The same hive, with frames and hive-body 2⅛ inches deeper, would overcome this objection.

You say nothing about eight-frame hives with Draper frames; but it seems to me that, if you get a call for those Draper barns, you will also get a call for eight-frame Draper hives. I should like to hear what others have to say on this subject.

We have not had a good willow-herb season here since the summer of 1896, when I raised 3600 pounds of extracted and 4600 of comb honey from 55 colonies, spring count. Willow-herb promised fairly this year, but it has failed. The blossoms seem to be blasted. Basswood also failed after blooming fully. We are thankful, however, that we got some clover honey, and there is a chance that we shall get a fall run. If not, the feeding of bees will be in order. R. S. CHAPIN.

Marion, Mich., Aug. 8.

EDITORIAL BY E. R. ROOT

RIVAL BEE-PAPER EDITORS.

If there ever was a fraternity of feeling among rival editors and publishers, it is among those connected with bee-journals. Once or twice Bro. York and I have occupied the same sleeper *en route* to conventions, and we were together much of the time afterward. This was particularly so in going to and from the Lincoln meeting. Well, this time Mr. W. Z. Hutchinson, of the *Review*, and I arranged to meet in Cleveland, there to take a sleeper on to Philadelphia. We left Cleveland on the night train via the Pennsylvania route; and, didn't we talk bees, things, and men! The subject of amateur photography we just reveled in. We not only went to the convention together, but we came back together; and on arriving at Cleveland Mr. Hutchinson took the train with me for Medina, where he spent with us a little over a day in looking over the bees, visiting Vernon Burt, etc. All this may seem sentimental to some; but it means much to bee keepers as a whole. If the editors of the leading bee-journals were clashing and pulling against each other, what would the result be?

MARKETS BARE OF HONEY, AND WHY.

I have already spoken of the markets generally being bare of honey, and that the cause was due to the fact that buyers were not offering enough. Although I have spoken of this in this issue, I believe the matter needs *special emphasis again*.

Bee-keepers should not be in haste to sell their honey just yet. Honey has advanced very materially in California and the West generally. Extracted that sold in California for 3½ cents is now selling for 7. According to the same ratio, comb honey that sold two years ago at 10 cents in our markets should now bring 20; and yet 13 to 15 is about the top notch of the eastern market. If the buyer wants honey it appears to me he will have to offer more than these figures. There is evidently much honey in Colorado, but it will never find its way east until our markets advance more than they have done.

It should be understood that commission quotations usually stand higher than cash offers, for the reason that from the former must be deducted freight and 10 per cent commission; but in whichever way the offer is made, the honey-dealers should understand that they will have to advance some before they will have much honey to offer.

THE PHILADELPHIA CONVENTION.

The Philadelphia convention, while not the largest in point of attendance, was a success in every way. There were something like a hundred present at some of the sessions. Representatives were present from Illinois, Wisconsin, Michigan, Ohio, Massachusetts, New York, Connecticut, Pennsylvania, New Jersey, Virginia, Florida, and a number of other Southern and Western States. The discussions were spirited and good, and the enthusiasm and the general fun-making were of the best.

A special feature of this meeting was the very excellent stereopticon lecture by Mr. W. E. Flower, a manufacturer of edged tools in Philadelphia. During this talk he "brought down the house" a number of times by witty sayings, good jokes, and funny pictures. Another interesting feature was an able and interesting address by Prof. H. W. Wiley, U. S. Chemist of the Department of Agriculture. He gave interesting and valuable data in regard to honey as a food, going clear back to early times. Bee-keeping as an art was only about as old as the Christian era, though there were pictures of bees 4000 years old. Of honey he said it was the most wholesome of all sweets, requiring the least effort to digest of any of the saccharine substances. This statement, coming as it did from the highest authority in chemistry and food products in the United States, means much to the bee-keepers of the country.

SELLING FOR CASH OR ON COMMISSION; HOW COMMISSION HOUSES MAY GET INTO THE GOOD GRACES OF BEE KEEPERS.

The question of honey on commission and outright sale was thoroughly discussed. E. T. Abbott, G. W. York, and W. A. Selser, argued against selling honey on commission, and in favor of selling it outright. There are so many temptations to deception and fraud in the commission business that Mr. Selser was decidedly opposed to that way of doing business. Mr. Abbott believed he could invest his money to much better advantage than to put it in the hands of commission men and let them make such returns on it as they see fit. He paid cash for every thing he bought, and did not see any reason why the commission man should not do as much. On the other hand, it was argued that very often an honest commission house could secure a higher price on a lot of honey sold on commission than where it is bought on outright sales. If the market advances, then the bee-keeper gets the benefit of the advance. If, on the other hand, it declines, he suffers in proportion to the drop in price. The general feeling in the convention was against selling on commission, and the firms who bought outright were very much in favor.

Those commission houses that had been offering the prices that prevailed a year ago were severely scored, and it was recommended that they be let severely alone — at least until they could offer better prices. It was stated that large lots of honey were being held back, and would be held until there was an advance in prices somewhere near commensurate with the advance in other things. It was evident from the discussion that the commission house or honey-firm that would curry favor with the bee-keepers would do well to make *cash* offers. One firm that buys for cash was very highly spoken of, and its customers, as far as they were present, expressed themselves as greatly pleased with the treatment that they had received.

HONEY A LUXURY.

Another spirited discussion arose over the question whether honey was a luxury or not. Mr. Selser thought it was. Others insisted just as strenuously that it was not. Then some one asked for the definition of the word *luxury*. Mr. Hutchinson said it was what he wanted but could get along without, and the Standard Dictionary bears out this definition. The general consensus of opinion seemed to be that extracted honey is almost a necessity. The human system craves sweets—needs them and must have them; and as all the best authorities agree that honey is the most easily assimilated of any of the sugars, therefore extracted honey is not a luxury. It was admitted, however, that comb honey might be and probably is, for it is bought for its beauty, and because it seems like the honey of the olden days.

BEE-KEEPING IN CUBA, AND ITS ULTIMATE EFFECTS ON AMERICAN MARKETS.

This occupied largely the attention of one session. Interesting papers were read by Fred L. Craycraft, a government official in Cuba, and from Mr. W. W. Somerford. The former seemed to feel that Cuban honey would never be a serious competitor to the American product, and that bee-keepers on this side need have no apprehensions. That there would be a rapid growth of bee-keeping in the near future there could be no question. Mr. Selser, who, as our readers are aware, buys large quantities of honey every season, paying cash for it, dissented most decidedly from the opinion that Cuban honey would not compete in our market. It was preferred by manufacturers and bakers to low grades of American southern honey, and the Cuban article surely would be a most serious competitor to our own dark and off grades. This opinion seemed to be shared by others. The duty now imposed on Cuban honey is not enough to prevent its importation into the United States. It was shown that some bakers take anywhere from ten to forty carloads of honey every year because there is no other sweet that will take its place—not even glucose as cheap as it is. Other forms of sweet require a certain amount of glycerine; but honey requires no such adulterant, if we may so use the word. Dr. Mason stated, on the floor of the convention, that honey-jumbles that he had bought from Bro. Root twelve years ago were still as moist and nice as when he first got them. Some one asked him why he kept them so long. "Why, to see how long they would keep," he replied.

Incidentally, between sessions I learned of Mr. York that Mrs. Rohrer, the celebrated writer on home cooking, when asked what she thought of using honey in preference to other sweets for cooking, ridiculed the idea by saying, "Why, what do you want to do that for?" And yet over against her opinion there are large baking concerns, some of which use as much as 30 carloads of extracted honey per annum in the manufacture of certain classes of honey-jumbles, honey-cakes, and other cakes of a like nature which it is desirable to keep for some considerable length of time without molding or becoming so dry as to be like a dry crust of bread.

Mr. Poppleton also spoke of the fact that not all Cuban honey is off in color or flavor. Bellflower, for example, in the opinion of many experts, would equal the best white honey of the North, and that there was no question but large quantities would be sold somewhere.

AMALGAMATION IN A FAIR WAY OF BEING CONSUMMATED AT LAST.

Secretary Mason has been having considerable correspondence with General Manager Newman, of the National Bee-keepers' Union. This correspondence was begun after it was learned that Mr. Newman would not serve again as Manager, owing to ill health and a pressure of other duties. To make a long story short, Secretary Mason submitted a form of constitution which was approved by Mr. Newman and the members of the convention present. This new constitution provides for the amalgamation of the two Unions, or, more strictly speaking, what is now the Union and the Association. The new organization will be known as the "National Bee-keepers' Association." It will be seen, by comparing the names of the two old organizations, that the name *National* is taken from the old Union, and the name *Association* from the present United States Bee-keepers' Association. The vote that was taken at Philadelphia simply indorses the proposed changes; and when the matter is submitted to the members of both organizations, there is every reason to believe that amalgamation will be accomplished in fact. There is now good feeling between the two organizations, and the members of the one are largely members of the other, and there is no reason why the two should not be married, and the wedding will no doubt take place in the near future.

GENERAL MANAGER SECOR'S REPORT.

Mr. Secor gave a history of the work that has been done by the Association during the past year, telling how he and Secretary Mason had arbitrated difficulties arising between commission men and bee-keepers, and how prosecutions against adulterators in Chicago had been carried on. A full history of the matter was given in our issue for Sept. 1, and so I will not go over the ground here; and, moreover, his full report will be submitted to each member of the Association, later, when the next election of officers occurs.

There were many other things of value brought before the Philadelphia convention, but I have not space in this issue to set them before our readers. The remaining topics that occupied the time of the convention will be brought up in our next and subsequent issues. Indeed, I gathered so much of value that it is doubtful whether I can cram it into one or two issues, even if I try, so I propose to use it as a sort of seasoning, sprinkling it in here and there as we go along.

OUR HOMES,

BY A. I. ROOT.

Blessed are they which do hunger and thirst after righteousness, for they shall be filled.—Matt. 5:6.

I have used the above text for my talks a good many times; and, in fact, there are few Bible texts that I love as I do this one. No matter how I feel, no matter what troubles or temptations assail me, when this question comes up before me I can always say, "Yes, thank God I *do* hunger and thirst after righteousness." Of course, when I am strongly tempted to be selfish I sometimes, for the time being, forget this; but that beautiful passage is always an effective rebuke. Some gentle spirit seems to say in times of trial, "Well, old friend, do you even *now* hunger and thirst after righteousness?" and by the time the gentle voice has ceased to speak I am back again in the straight and narrow path. A few days ago my very dear friend Bro. Reed, whom I have mentioned so often that I do not think I need to introduce him at this time, sent me a postal card, asking me to go to Newark, Licking Co., O., and talk to his people, for he was then holding a series of meetings there. It was just then I had planned to go to Boston, and I wrote him I regretted I could not go at the time he mentioned. But I did not feel quite easy about neglecting his invitation. A little later, when other things seemed to make it very inconvenient for me to leave home, I wrote him that I would come after all; and then some way I felt better satisfied.

In order to make my appointment I took a trip on the cars, planning to take my wheel and ride back at my leisure. I reached the church in the middle of the afternoon, and found Bro. Reed within a minute after I arrived. I rather expected I should find him near the Congregational church; for when he is holding a series of meetings he is much of the time in or around God's holy temple. He soon told me that he and the young pastor had arranged for an afternoon prayer-meeting in the outskirts of the city, and asked me if I would like to attend. Yes, I always like to attend a prayer-meeting, especially where Bro. Reed presides. As this meeting was in the month of August, and in the middle of the afternoon, not very many *men* were present; but there was a lot of women, mostly mothers of families. Bro. Reed was a comparative stranger to every one in the audience. In fact, I am sure he could call hardly any of them by name; but yet before this meeting had closed he had talked so kindly and familiarly with them that nearly every one gave some sort of brief testimony, telling of *her* hungering and thirsting after righteousness through many busy cares. Afterward a large number of them took part in brief prayers. One would almost think it was an Endeavor meeting among the old folks. Now, any person who is in the habit of leading prayer-meetings will recognize that it is a pretty difficult matter for a stranger in a strange town or city to have such a prayer-meeting as this. As the meeting closed, I am sure that every one present felt an uplift of soul, and that they were nearer to the heart of the great Father than when the meeting commenced.

I wonder if I may be permitted to diverge a little here to mention a single occurrence. Just before closing, a lady arose and commenced to sing a solo. Something in her appearance struck me as a little strange, but I decided she was probably accustomed to assist in religious meetings, and in this way manifest her sympathy with the work. At the close of each stanza her voice sank low, and with wonderful skill she executed a difficult passage in music that thrilled me through and through. There were, perhaps, three or four stanzas. Before she closed I was mentally thanking God that at least *one* person possessed such a voice, and had skill to use it with such wonderful fervor and pathos in praising God. When she commenced the hymn I was a little surprised because Bro. Reed, the pastor of the church, and perhaps one or two others, joined in with her with the exception of the chorus. I had decided to thank her, and to tell her she might thank God for her wonderful gift. But I thought I would first speak to Bro. Reed about it. He smilingly said he was glad I had first mentioned the matter to him. Now, reader, what do you think? My decision that she possessed a wonderful voice was correct. It was also true that she had spent years in the study of music, and was a most accomplished singer; but it was also true that her mind was a little out of balance. No one could object to her beautiful hymns; but most people did object to her solos, that came not only *in* time but sometimes *out* of time. She was all right, like lots of other good people, when she could have her own way; but once when she interrupted the minister in his *sermon* to sing a solo it did not suit very well, and therefore the good pastors are always worried when she puts in an appearance, as she is almost sure to do when any thing like a revival comes along. The incident caused me to reflect again how wonderful are the phases of humanity; and, also, how true it is that just a *little* jar may throw a gifted and cultivated mind out of balance!

During the evening I gave my talk on business and religion to a rather larger audience than I ever spoke to before; and, what is still more remarkable, at least three-fourths of the large church was filled with *men* — probably men in business. Sometimes in speaking I have planned to use a good many Bible texts; but I am sorry to tell you that, a good many times, these texts do not come just when I want them; for I have seen the time more than once when I could not (on the spur of the moment) repeat the simple text at the head of this talk to-day. This time I prayed over the matter. Again and again did I beseech the dear Savior to help me to overcome this fashion of having my favorite texts elude my grasp just when I wanted them most. Do you suggest notes? Well, notes are some help; but when I am obliged to look for them they break the thread of my discourse, and oftentimes get me off from the track. It is much better for *me* to make such thorough preparation that no notes are needed. On this occasion I prayed with more than usual earnestness over the matter, and the prayer was answered. Every text I had planned to use was right at my tongue's end when I wanted it, and I could speak it with clearness, force, and emphasis.

Before retiring for the night, Bro. Reed and I knelt together as we often do. In his prayer he thanked God for the privilege of passing a few hours with his old friend and fellow-worker; and as we arose to our feet, I told Bro. Reed something that happened more than twenty years ago. I believe that I have hungered and thirsted after righteousness more or less all my life; but the thought never occurred to me to seek *first* the kingdom of God and his righteousness until, through Bro. Reed, I caught a glimpse of God's kingdom. This glimpse came about a little strangely too. Before I met him I had been for many years rather opposed to revival meetings; but after I became sufficiently acquainted with the young pastor to know, as everybody else does, how thoroughly he was given, body and soul, to God's righteousness, I looked at him with more charity. I thought he was mistaken, but still I admired his unselfish zeal. It seems to me no one can avoid doing so when he once comes to know him and see him. Well, one Sunday morning as we stood up, I think it was while they were singing before the sermon commenced, all of a sudden something suggested that I should give up my old life and commence a new one by laboring by Bro. Reed's side. God knows I had no thought of being his equal in any way in the work of saving souls; but the idea presented itself that, if I could stand near him, perhaps a little behind him, and hold up his hands, and perhaps bring him things he might happen to need, or give him a lift when he greatly needed a helper — why, it seemed to me that *such* a work would be nearer perfect happiness than any thing else I could think of in this wide world. The thought of it thrilled me again and again.

Now I know, dear friends, that I should strive to serve *Christ Jesus* and him only; but I do not feel after all as though my first visions of Christ's work were so very much out of the way, even if they did connect themselves with the young pastor of our church with all his devotion and enthusiasm. Well, years have gone by, and many changes have been wrought. I do not think a year has passed, however, wherein Bro. Reed and I have not labored together more or less; and after almost 25 years, as we knelt side by side, he in his prayer thanked God, while I myself was also mentally thanking God, that my early vision of happiness and joy had been at least to some extent realized. A great many times during these years my dear brother has helped me by counsel and wise suggestions. He has helped me when nobody else *could* help me in a like manner; and it rejoices my heart to look back and see that I too have been many times permitted to help him, when perhaps nobody else could help or would help. God has helped us to know each other and to help each other. Why should not those who are hungering and thirsting after righteousness be helpful one to another?

The next morning I was off on my wheel for a spin through the beautiful hills and valleys of Central Ohio. I noticed the wheelbook said Licking County is one of the most beautiful, agriculturally, in the State. I fully realized it that morning. I was happy, because I had responded, as best I knew how, to God's call. In a little time I was looking over the pleasant city of Mt. Vernon. I visited the park where they have been having many religious meetings lately, and saw the flowing wells where pure soft water pours out of the ground without pump or windmill or any thing of the sort. What a beautiful gift from God are these flowing wells! It makes me think of my text—hungering and thirsting after righteousness. And is it not true that every wayside well or spring *helps* toward righteousness? Oh how I do love to see thirsty people and domestic animals slake their thirst with pure wholesome water!

Toward the close of the day I made a stop at Apple Creek, Wayne Co., Ohio, where I was told there were some flowing wells of great volume. Near one of these wells we have a subscriber—Benjamin Zürcher. When I first began to inquire in his neighborhood for a man by that name I was somewhat disappointed to hear people say they knew no such man; but an old German said he could tell me where Benjamin *Zittaker* lived, if that was the man I wanted. When I found my friend he laughingly told me that the people all around there would call him Zittaker in spite of all he could do, but that his name was really Zürcher. Well, I was really glad I called on Benjamin. Shall I tell you why? Because he is an enthusiast on fruit culture. He has planted out on the hills of Ashland Co. 3000 pear-trees, 3000 plum-trees, and ever so many other kinds of trees whose names I can not remember now. He showed me some of the "gold" plums from Luther Burbank. They are beautiful plums to look at, and when ripe are said to be delicious to eat, while at the same time they are as hardy as the wild plums scattered all over Ohio.

I could not stop with friend Zürcher very long, however, because I wished to visit the largest well in Wayne Co., and perhaps one of the largest flowing wells in Ohio. As it was a very dry and dusty time, I found these wells doing excellent service in filling up water-tanks of all descriptions for the farmers. The one near schoolhouse No. 7, East Union Township, fills a three-inch pipe, and rises up about three feet above the ground. They found this vein at only 89 feet depth. When I got there a farmer was swearing because the standpipe was not six inches higher so it would pour the water directly into his wagon-tank. I told him that, instead of using bad words, such a flow of beautiful pure water should lead every one to thank God for the precious gift every time he came in sight of it.

In order to shorten the distance to the other and larger well I crossed two farms, riding down one lane, opening the gates, of course, and then getting out by another lane on another road. While away back in the lots I met a very pretty young girl driving her father's lumber-wagon. She naturally felt somewhat embarrassed at being obliged to talk to a strange man away off in the field. It was growing dark, and I was very anxious to be directed by the shortest cut to the celebrated well. Although she flushed a little with embarrassment, she finally gave me very full directions in a very pretty and ladylike way. Now, I have been telling you of a very simple, commonplace event; but as I hurried past on my wheel so I could follow her directions before it was too dark to see, I fell to meditating, and my thoughts ran in this way: Is there a man in our whole wide land who would not give the last drop of his life's blood to protect our young women? Just now there is great activity everywhere. Farmers, on account of their lack of help, are having not only their young boys but young girls drive teams and do other work that they can do. There has been considerable sport at the expense of the old-time knight-errant because he was expected to give his life, if need be, to protect womankind. We need some of the spirit of chivalry now; and the poor man's wife or daughter should be held as sacred and as much entitled to protection as the finest lady that the land affords. Not only should womankind be protected from men who have their senses, but the drunken man should be taught that whisky in no way excuses him for brutality of any sort.

I reached the celebrated Amstutz artesian well just as it was getting to be a little dark. The men-folks were doing the chores, and so the farmer's daughters very kindly volunteered to show the stranger around in the twilight. The water was turned off from the great well, because I afterward learned that about every seven years, if left running, it cuts or corrodes the pipe, and thus ruins the well, and then a new one has to be drilled. Galvanized iron is not only no better, but it actually cuts out quicker than black iron pipe, so Mr. Amstutz told me. One of the girls went inside of the building and opened the valve in the four-inch pipe while I stood outside. Such a volume of water came pouring out into the raceway that I almost became alarmed. Why, it seemed as if there was enough to run a "saw-mill," in very truth. Mr. A. has made an overshot water-wheel inside of the building. The wheel is 12½ feet in diameter, and the buckets take all the water so as to get pretty much all the power. The actual product is six barrels of water a minute. Imagine a stream that would fill up a barrel six times in one minute, and you have it. When first drilled, the water came out with such force as to throw out stones two or three inches in diameter. This water-wheel grinds feed for the stock on Mr. A.'s farm, turns the churn, washing-machine, and works a series of brushes for ventilating, and keeping the flies away from the dinner-table. The well is only 99 feet deep. Mr. A. has drilled three different wells in all. The well by the schoolhouse I first visited I should say was three-fourths of a mile distant. Many attempts have been made by neighboring farmers to get similar wells; but although Mr. A. strikes the same vein of water every time in his own locality, the other wells in the neighborhood are mostly failures. The stream has been running about twenty years. The location is six miles southwest of the town of Orrville, Wayne Co., O. When the well was first drilled the water rose to a height of 24 feet; but now it rises only about 14 feet. The valve is kept closed unless power is wanted, on account of the force of the stream cutting out the iron pipes, as I have explained.

After thanking my good friends, and assuring them that such a sight was worth going many miles to see, I started to go back to the little town of Apple Creek; but when my friends informed me that Apple Creek was three miles away, and Orrville, which was on my way home, was only six miles distant, I decided to take a moonlight ride to Orrville. The moon was not yet up; but rather than sit down and await its slow motion I decided to get along as best I could in the dark. With good roads this would have been a very easy matter; but with the deep soft dust consequent on our long severe drouth I was obliged to feel my way, as it were, with the rubber tire; but I soon got so I could ride very well; and when the great full moon illuminated my pathway I found the ride after dark much more agreeable than during the daytime. There is something exceedingly invigorating about the damp night air, especially when on the wheel; and when I ride through a valley where there is quite a little fog, I find the moisture-laden air is simply *delicious*.

In order to get home to see to some important business I started off next morning at four o'clock. Another reason for my early start was that the morning air is much pleasanter during severe hot weather, and the dust is not nearly as bad. Another thing, through the day one is not only annoyed by teams going back and forth, but these same teams stir up the dust. The wheelrider who gets up at daylight has the road all to himself, and is comparatively free from dust, even during a very dusty time.

Between Orrville and Rittman I found more flowing wells with their watering-troughs out in the fields; but the water here is so near the surface that the farmer finds it but little expense to find a flowing well anywhere he wishes. Many of them are right by the roadside; and the noise of the falling waters makes one think of babbling brooks. "Blessed are they which do hunger and thirst after righteousness;" and, somehow or other, pure, cool, sparkling water has always associated itself in my mind with righteousness; and who can tell how much iniquity might be put away or *washed* away, if you choose, by having plenty of springs and artesian wells and watering-places along the roadside to slake the thirst of multitudes of thirsty people? Dear reader, have you done all *you* can do in providing the world with plenty of good, pure, cool "living water"?

NOTES OF TRAVEL

BY A. I. ROOT.

THE OHIO STATE FAIR.

I am beginning to regard it as a duty to make at least a brief visit to our Ohio State Fair, especially as, in my special correspondence, so many questions are being asked in regard to various kinds of farm machinery. Almost every day somebody is asking me about tools for doing all kinds of work on the farm; and by visiting the fair, and looking over the implements, I am better prepared to answer intelligently all such questions.

Our recent Ohio State Fair had the largest and finest exhibit of farm machinery I ever saw before in my life. Another pleasant thing about these exhibits is that each machine was, as a rule, shown and exhibited by its inventor, and one full of enthusiasm over the capabilities of the child of his own brain. It really was a treat to me to see these men make their own machines show off their capabilities and excellencies.

For the first time in my life I saw what I should call a successful corn-husker. The ears were neatly trimmed of every bit of husk and silk, and piled up in a heap, while the stalks and husks were shredded up just right for fodder, and piled in another heap.

There were windmills and pumps, without number. The little spray-pump that has met with so much favor was exhibited in a multitude of forms for every possible purpose; fences, gates, and building material of every description—material for making roads, and machines for crushing stone. Why, I really felt proud of our State of Ohio; yes, and I felt proud of humanity when I looked over that busy scene with its forest of machinery, and its hum and clatter and enterprise. I felt glad, also, to note that there did not seem to be any intoxicating liquors sold on the grounds nor outside around the grounds. The exhibit of fruits, vegetables, and last, but not least, of nice honey, was also creditable to our State. But there did not seem to be the wideawake enthusiasm anywhere on the grounds such as we saw among the machinery men and the manufacturers.

As there was to be a display of fireworks in the evening, and a mock battle concluding with a bombardment, Huber and I decided to stay until next day. As we were pretty well tired out with running about so much we decided to take a seat in the grand stand, even if it did cost 25 cts. each, so we could rest during the fireworks. A new grand stand has just been erected, which somebody told me would seat comfortably ten thousand people. It did not seem to me possible that there were ten thousand people willing to pay 25 cts. each for a seat; but before the ticket-offices were open (for there were several of them) there was a perfect jam about the windows. Not only men, but women and children seemed almost frantic to get up to the office and get a ticket. After they secured their tickets the entrances were blocked even worse, and the crowd surged against the turn-stiles with such vehemence that three policemen were called near our own entrance to drive the crowd back. For the first time in my life a policeman brandished a club over my head, and threatened to strike me if I did not stand back. I looked up smilingly, and said, "How can a little man like me stand back with all this surging crowd of great burly men behind him?" He looked back over the sea of faces, and evidently decided I had got it about right. But the people away back were not afraid of the club, which could not reach them, and so they kept on pushing and crowding. Well, the ten thousand seats were all filled, and a thousand or more people were driven by the police out of the grand stand, and down on the grass by the race-track. They had all paid their 25 cts. each for a seat; but they simply got a place inside of the inclosure, right on the ground, not a whit better than the crowd occupied on the right and on the left, that had not paid a cent. Furthermore, said crowd on the right and left, before the fireworks began, tore away the fence, and surged around in front of those who *had* paid, so they were really worse off than those who had not paid any thing. Now, there is something very unfair about this. I do not exactly know what the remedy is, either. A sufficient number of policemen might, perhaps, have made this mob of thousands get back where they belonged; but in order to do it there would have been a row, and the entertainment would, perhaps, have been broken up. The whole trouble seems to be, that just at the present time excursions, shows, and exhibitions of almost every kind seem to be on a boom. Everybody has work, therefore everybody has money; and the general tendency seems to be to use this money to rush in mad crowds into every thing, and wherever people are invited to go. Instead of saving up this money for a probable "rainy day," Young America—yes, and *Old* America too—seems to be determined to get rid of it as fast as possible.

"Well, Bro. Root, this is a very good sermon of yours; but how does it come that you *too* were in the crowd? Yes, and you took Huber along besides." Yes, I was in the crowd; but I do not believe I shall go next time. I do not know how many thousands of dollars' worth were burned up in those fireworks; but I do know that the people paid some three or four thousand dollars to get into that grand stand to see the fireworks. Now, burning up money in fireworks is not by any means the worst thing that can be done with it; but yet while the people of Porto Rico are starving, and we are admonished again and again that the amount being sent in is by no means sufficient, is it just the thing to use our quarters, to say nothing of dimes and nickels, for fireworks? Then in regard to this matter of swindling a thousand or more people, for it certainly *is* a swindle to take 25 cts. for an elevated seat where one can get a good view, and give nothing of the kind. A great many demurred, after having paid their quarters, against going down the stairs on the ground; but the police absolutely drove them off the platform. The right way would have been to pay them their money back when the seats were all occupied; or, better still, refuse to sell tickets to more than the number of people who could be crowded on to the seats. The managers certainly knew when ten thousand had passed the turn-stiles, for these machines were made on purpose to register the number going through; and the police absolutely *made* the crowd go through in regular order.

There was one other sad occurrence. During the bombardment, at the close of the mock battle, while a great charge of musketry was going off, *bullets* were flying in different directions A boy seven years old, not very far from where Huber and I sat, was shot through the heart and killed instantly. He had just been rejoicing at the magnificent display of fireworks when he was shot dead right by his mother's side. Four people all together were hit by bullets, and one soldier, if I am correct, was killed. The only explanation offered is that, by some piece of carelessness, some cartridges containing bullets were mixed in among the blank ones to be used in the mock battle.

The fireworks did not commence until nearly nine o'clock, and the great crowd was kept there waiting on account of some horse-racing that I neither understood nor cared about, and I presume there were many others like myself. It was nearly 12 o'clock when the exhibition was over; then Huber had to make another siege into the crowd to get tickets for the street-cars. When we got back to the great city of Columbus all the hotels were full, and we were obliged to get lodging at a boarding-house. The weather was excessively warm. The mercury had touched 97 during the day. We had to sleep in one little room with one small window in it. I said *sleep;* but it was very little sleep that either Huber or I got, on account of the heat radiated from the walls that had been exposed to the fierce blazing sun all day.

We got up early in the morning, and went out to the grounds of the State University of Ohio. As it was too early in the day for the professors to be around, or anybody else, very much, I stretched myself on the soft dry grass, a little secured from observation by a clump of trees; and as I sank into unconsciousness I wondered why people would pay 50 cents for the privilege of sleeping in a hot stuffy room when all outdoors was open and free to all mankind. Dear me! what a contrast! During such dry sultry weather I would rather *pay* for the privilege of lying down on the grass, under God's blue sky, than to take any bed indoors at any price. And then I thought of the text, found in the 55th of Isaiah, "Why do ye spend money for that which is not bread, and labor for that which satisfieth not?"

This was Huber's first visit to the University grounds and buildings belonging to the State of Ohio. We had some very pleasant talks with the professors, and visited and looked over the various buildings. Huber was especially interested in the mechanical and electrical buildings; in fact, our visit was with the view of having him, sooner or later, take a course at the University. I have before mentioned the beautiful new gymnasium. Along toward noon I noticed that a restaurant was kept in the basement, for the benefit of students, especially for those who are working hard, and using economy to get an education. They have a very pretty lunch-room where various articles are furnished for only three cents; for instance, a glass of milk, a cup of coffee, a dish of soup, a sandwich, bread and butter, and various other things, are served for the trifling amount mentioned. I had quite a chat with the young man who had charge. This lunch-room is under the management of the *cooking*-school; and boys as well as girls are taught to cook, and do housekeeping and other work of that sort. Now, I do think this is an exceedingly bright idea, to have every boy taught to cook and do housework whenever it may be convenient or necessary for him to do so. Permit me to state briefly that our Ohio State University not only teaches the young people in its nice buildings, but on its grounds it is testing and using all sorts of building materials produced in this State. They have samples of the different kinds of brick made for different purposes; samples not only of all sorts of sidewalks and pavements, but good roads built by all modern processes. This University expects to not only be able to advise farmers in regard to what machinery they shall procure, but they test, examine, and weigh and measure, not only every thing that is produced, almost, that is wanted on the farm, but they in like manner examine and report on machinery for all industrial enterprises. I have before this mentioned the very complete buildings and apparatus for the manufacture of cream, butter, and cheese. After the boys have had a course, even a brief one, at the University, they are not likely to be taken in by "creamery sharks," or sharks of any other sort, that are endeavoring to impose on the farmer.

Permit me, before closing, to mention a little experience with a set of sharpers on the streets of Columbus. Of course, we purchased excursion tickets to the State Fair. Well, two friends accompanied us who live in the southern part of the State. They were not going to *return*, therefore I undertook to dispose of the return portion of their tickets. As we were in a hurry to get over to the State Fair, I went out on the streets with the two tickets in my fingers. Very soon a man I did not like the looks of asked what I would take for them, and put out his hand for them. I felt some misgivings about letting him get them in his fingers, in a crowd on the street, but I finally let him take them. He first said they were not good; but a man who stood near him offered me a dollar apiece for them. I finally told them, as I was in a hurry, they might have the two for $1.25 each. At this a third party offered me $1.50 apiece for them, and pushed the money right over toward me. The man who first got hold of the tickets interposed. "Look here, gentlemen, this is *my* trade. The man offered them to me for $1.25 each and he can not sell them to anybody else until I accept or reject his offer."

Then I became a little rattled, and foolishly assented to this proposition. I forgot that it takes *two* to make a bargain. If you offer a piece of property for a certain price, *until* this offer is accepted you are at liberty to recall it. The man who held the tickets finally declared that he accepted my offer, put his hand in his pocket, and fished out a dollar which I took while he was feeling in his pocket for the rest of the money; but finally, as quick as a wink, he slipped into the crowd and twisted around so I almost lost sight of him, keeping my tickets and the $1.50 due me. I got my eye on him, however, and demanded the $1.50. He finally gave me another dollar, and said in a low tone that he was just trying to evade a policeman who was going to arrest us both, as it was against the law to sell tickets on the street. He had taken my dimensions, or at least thought he had, and I came pretty near letting him go; but I finally decided that, if it was against the law to sell tickets on the street, I would take the consequences. Finally somebody called to him from a distance to "give that man the rest of his money, and do it quick;" then he gave me $1.25 more, and slipped off. The person who had interfered in my behalf then came up and informed me that he was a constable, and was watching to catch that very chap, for he had been told that a new dodge of theirs was to get possession of the tickets, and then get away with them and with the money too. He explained to me that if I was inside of a ticket-office I could safely let the man behind the counter examine my tickets. "But," said he, "when you are out on the streets, especially in a crowd, never let anybody take your ticket out of your fingers. If you wish to sell it you can show it to them all they need to see; but just keep it in your own hands."

I have thought best to give this little incident, because it may be of benefit to those whose experience, like my own, may be quite limited.

THE POTATO CROP FOR 1899.

Although potatoes started out very fairly (and, in fact, the early ones did very well until half grown), during the latter part of the season there have been a good many troubles for the potato-grower. First, the blister-beetles came in our locality worse than they ever did before, and a good many growers just gave up and let the beetles eat up every thing. We fought them inch by inch, and killed them by the bushel by shaking them into a pan with a little water, and a little coal oil on the surface. One day we had four men at work all day, and they worked hard. Some questioned as to whether the potatoes would be worth the expense and trouble. Well, we got rid of the pests, or pretty much so, and the potatoes started to leaf out again. Then came the very hot weather and the drouth, and many varieties succumbed to the blight. The Triumph was first, perhaps, to die down completely; and that is the great trouble with this extra-early potato. The Bovee did very much better. In fact, our Bovees, planted after strawberry-picking on the strawberry-ground, are still green, and are growing finely. The Thoroughbreds stood the blight and heat better than the Triumph, but they are now dead, considerably before the crop was fully mature. The Early Ohios, planted late, are still green and growing. Burpee's Extra Early held out longer than any of the other earlies, but finally went down. Mills' Prize is, part of it, green and growing now; but the blight hurt it; the same with the Rural New-Yorker, Carmans 1 and 3, and Sir Walter Raleigh. The two latter are going to give us a magnificent crop in spite of the drouth. Manum's Enormous, much to my surprise, has pretty much died down. The crop will be only fair. But the new Craig (as it has always before on our grounds) stands head and shoulders above every thing else so far as blight is concerned. It is now green and growing, and the ground is puffing up with great handsome smooth potatoes.

To tell the truth, I have not tried the Bordeaux mixture for the potato blight. The greatest reason why I have not tried it is because so many who did try it, and who seem to have followed it up faithfully, report so little advantage. On the island of Bermuda it was really a question as to whether any application of chemicals did any good at all; and yet there are certain places, both in the Bermudas and in our own country, where the Bordeaux mixture seems to be a perfect remedy. I can not explain why there should be so many failures. Now, it may be that our potatoes are not affected by the genuine blight; but I call it blight; and this kind of blight is certainly produced, at least to a great extent, by a hot sun and a lack of rain. Potatoes that were shaded by large trees, or even partly shaded, especially in the afternoon, in every case kept green a great deal longer; and the potatoes in the orchard, that were covered with straw, although they were Early Ohios and Early Vermont, were never touched by blight at all until the drouth was so severe that the ground was dry and hard, even down under the straw. We did not put on straw enough. Where it was applied, say two or three feet in thickness, potatoes are now green, and growing with rank luxuriance.

One thing more: Where a very heavy growth of crimson clover and wheat was plowed under, the blight did not affect nearly as much. Heavy manuring I have always found to be a remedy for this sort of blight; but it may be that it is because so much humus in the soil collects moisture and holds it.

Now, besides the bugs and the blight there is one other trouble we have had to contend with this year. The scab is fearfully bad on certain varieties. You may remember I bought a barrel of potatoes of one of our friends who thought they never would be scabby. I planted them on our worst ground for scab, and the product is the worst lot of scabby potatoes I ever saw. I also had some russet potatoes that were claimed to be exempt from scab. I think they are a little better than some other kinds, but a great many of them are quite scabby. There certainly is a great difference in varieties. Our Carman No. 3, Sir Walter Raleigh, and Mills' Prize, are comparatively free from scab; and the New Craig is, we might say, entirely free. This year, like all other years since we have had it, it seems to be almost proof against bugs, blight, and scab; but, sad to tell, it does not behave thus in all other localities. In fact, the Ohio Experiment Station reported that it seemed to be particularly *susceptible* to blight; and yet I was going to call it a blight-proof potato. Did you ever!

Now there is another thing about blight and scab both—yes, and we might say bugs also. As a rule, potatoes planted in July escape all three. During the extremely hot weather the last of August, the blight began to show on my late-planted potatoes. But we have had abundant rains and cooler weather for about ten days, and the potatoes have taken a new start, and are just growing grandly. I think we might grow even the Triumph without blight if we could plant it so as to have it mature just before frost. We planted a few the 7th of July. These were from potatoes grown this spring. They were doing grandly until the severely hot weather about the first of September, and then *they* began to blight, and almost dried up. Since the rains and cool weather, however, they too are starting up green; and if frost holds off we may get a fair crop.

Sept. 15.—I have just been down, raking over the surface, and fixing them up, and I pushed my hand into one of the hills and pulled out a beautiful clean handsome potato the size of a hen's egg.

You may remember that I paid Wm. Henry Maule $10 00 for a single potato just two years ago. Well, this year I am going to have a big story to tell you about the quantity of potatoes I grew in the two years, from just one potato. They are not dug yet, however. I put my fingers into one hill and pulled out a potato that weighed 2¼ lbs. It is going to be the largest potato, as a rule, that I know any thing about; but, unfortunately, it is not as smooth and handsome a potato as the Carmans; and, by the way, when we come to *quality*, there is nothing in the whole list that comes up to the Freeman, unless it is Mills' Prize. The latter is not as handsome in shape as Carman No. 3, but it comes pretty near it; and if the quality this year should be equal to what it was last, I think I would place it at the top of the heap for an all-round *late* potato. Let me make a brief summary:

The Triumph is the *earliest;* Bovee comes next; the Early Ohio is the most *popular* early potato; the Freeman is the best *quality* of any thing, either early or late; Carman No. 3 is the *handsomest;* and the New Craig, on our grounds, is the nearest to being bug-proof, blight-proof, and scab-proof.

BUGS, POTATOES, AND COTTON-SEED MEAL.

In regard to using cotton-seed meal on potatoes, this is my experience this year:

I planted two acres with 200 lbs. of meal in the drill, per acre. In two rows I put double that quantity in the drill. Right alongside this patch was an acre and a half without any thing on it except the potatoes. The potato-bugs attacked the *entire patch,* "without fear or favor." But one of your Faultless sprayers "laid them out." (Don't tell Mr. Taylor.) M. S. LUSBY.

Nursery, Texas.

Humbugs and Swindles.

Just now there seems to be a good deal of money got by advertising to teach hypnotism. A subscriber of ours, away across the ocean, sent to a man in Chicago, in answer to an advertisement. First he had to send 50 cents; but the fifty-cent book was mainly devoted to advertising a larger one, the price of which was $4.00. The little book was so sure the four-dollar one would make the directions so clear that any one could hypnotize folks, that our friend sent on the $4.00. He received the book; but this, too, was devoted mainly to telling about the wonderful things an expert could accomplish in this line. But the author stated that the only way to get to be a *real* old hand at the business was to attend a school of instruction. I think this instruction could be given by mail, where the parties were off at a great distance. Said "instruction" required $50.00, and our subscriber was asking me if I could ascertain whether Prof. So and So was reliable. We located the man, and found on inquiry that he was getting a good deal of money from some source, and lived in pretty big style, but did not seem to own any thing.

Just now a professor hailing from Jackson, Mich., is sending out circulars of similar import. His course of 20 lessons costs $5.00.

Now, friends, this whole business is simply a revival of an old humbug and swindle. When you get to the point where you are prepared to believe every thing some humbug professor says, where you promise to *do* every thing he tells you, no doubt some very curious things may be accomplished; but the statement that one man can hypnotize another, whether he consents to be hypnotized or not, is a point-blank falsehood; and the statement that *any* one can be hypnotized is another falsehood. There are some wonderful things, it is true, that can be accomplished along the line of clairvoyance and hypnotism; but you will find it is safe to let the whole thing entirely alone. Its victims usually get into idiotic or insane asylums, and it is a great pity the "professors" who take their money are not *equally* sure to get into penitentiary for life.

KIND WORDS FROM OUR CUSTOMERS.

BIG BERRIES.

I've been getting supplies from you for 16 or 18 years—among other things, strawberries. This year I had Jessies and Bubachs that measured 5¾ in., and thought I was a hustler on berries; but when I read of that 10½ inches it just knocked all the conceit out of me; but it takes a man with a good mouth for berries to eat more than one of *mine* at a time.

Howesville, W. Va., June 22. J. L. McKENZIE.

Your chaff hive, the last one, is the thing. I had them out with no protection, not a fence or tree, and the north wind howling around them with mercury at 42° below, and that wide entrance all open. I did not expect them to come through. It seemed that enough arctic cold would come in at the entrance to freeze brass bees; but these came out strong in spring.

Marion, S. D., June 6. S. J. HARMELING.

The goods ordered have arrived, and are very fine, giving entire satisfaction, as is invariably the rule when ordering from you. Allow me to thank you for your promptness, which I appreciate more this time than usual, as I needed the goods very much. I can get goods from your factory in about the same time that it takes to receive a reply from some parties at no greater distance. W. A. KLOCK.

Herkimer, N. Y., June 5

The three queens arrived safely and in good shape, and have been installed in their new homes. They are fine specimens, and I assure you I am much pleased with them. One has already begun laying, and no doubt the other two will by to-morrow or next day. The first tested queen purchased of you is, beyond doubt, the most prolific layer I have ever seen, and her bees are simply magnificent. I can almost pet them, they are so gentle. It is quite a pleasure to deal with people of your kind; and I trust, as we grow older, we shall know more of each other. I am in the bee business to stay; and while I have much to learn, I am no novice by any means.

Jacksonville, Fla., June 7. W. G. PEEBLES.

Is there a supply house in all this broad land that will do better by the bee-men? If there is, we should like to know it. The sequel to all this is, the officers of this company are what we term "white men," no matter what color their faces may be.

Corona, Cal., July 22. H. M. JAMESON.

The queens all reached me in good order, and are satisfactory, as are all goods purchased of your firm. Thanks for promptness and kind treatment.

Scio, O., July 19. T. H. COOK, M. D.

The Ideal deep hives have arrived in good shape. As soon as we had one set up complete, Mrs. Welch exclaimed, "That is the hive for honey." I for one am glad you are making such a hive, though results the first season would be in favor of the shallower frame. D. H. WELCH.

Hopedale, O., June 26.

My three queens I got of you are all doing finely. I would not take a five-dollar bill for my lame queen. E. S. COFFIN.

Nat. Military Home, Grant Co., Ind., June 7.

The bee-fixtures that I ordered of you came to hand in good order, and are the finest work I ever saw. Every thing went together like the leaves of a book. The supers fit my Quinby hives perfectly, and are sure to give better satisfaction, although costing a little more than what I could have got them for from your agent in Portland, Oregon. Thanks for your promptness in filling my order for odd sizes.

Fidalgo, Wash., May 30. H. A. MARCH.

Inclosed find $2.50, for which send me one of your 16-inch-cut lawn-mowers. I may send for more soon, as the dealers here want $4.00 for that size; but they don't know your make, and think it may not be reliable. I tell them all you put out *is* reliable. I have proved it for years; but they think they will see a sample when mine comes. O. A. A. GARDNER.

Belleville, Kas., June 10.

The frames are well made, and A No. 1, and a pleasure to look at. FRED HOLTKE.

Newark, N. J., May 15.

Please thank Mr. A. I. Root for his suggestion of putting a white onion under a hen for a nest-egg.

Kingsey, Can., May 1. ARTHUR A. EVANS.

Mr. Root: — I am not a member of Dr. Dowie's church, and never expect to be; but your first reference to the case of Henry L. Imler I felt was unjust toward Dr. Dowie. In last GLEANINGS you give the unvarnished truth, and I see now you are the same "Uncle Amos," as of old. God bless Uncle Amos!

Hebron, Neb., May 6. F. KINGSLEY.

Thanks for your very kind words, friend K.; but I deem it no more than fair to state that Dr. Dowie is having a great deal of trouble of late, and troubles, too, such as no man ought to have who is guided day by day by the Holy Spirit.

Additional Special Notices.

GARDENING AND FARMING IN THE MIDDLE OF SEPTEMBER.

Now is the time to sow Grand Rapids lettuce seeds for plants to be put into the greenhouse or frames later on. It is also time to sow cabbage seed in order to get plants suitable for wintering over in cold-frames; and good cold-frame plants are certainly far ahead of most of the plants that are grown in greenhouses or in the spring. Winter radishes may also be put out when this reaches you, and give a crop of the finest radishes in the world before the weather is severe enough to injure them; and folks who like to see things green and growing just at the time when every thing else seems to be dead and dying will put out a piece of wheat or rye. Don't let your ground stand over winter with nothing on it to make it green. If you wish to grow rye for planting potatoes next year, now is the time to sow it; and I believe winter rye is less likely to be affected by the fly than wheat. If you are going to turn it under, the ranker and stronger the growth it makes in the field the better; and, so far as our experience goes, turning under rye is about the only reliable plan for cleansing ground that has been infested with the fungus that produces the scab on potatoes. We have sown one piece of rye already where we dug our first potatoes.

THE NEW EDITION OF THE A B C OF BEE CULTURE NOW READY.

Before the next issue of GLEANINGS is out we hope to have the new edition of the A B C book in the hands of those who have had their orders with us so long. The new book will be, in many respects, far ahead of any of the previous editions, both in typographical appearance and general subject-matter, for we are now building upon the knowledge and experience of these latter days, when such wonderful developments have been made all along the line.

Strange as it may seem, as long as the A B C book has been published, there never before has been in it a subject of *hives* and one of *honey*. It is true, the former has been discussed in a general way under "Hive-making;" but the new subject deals not with how to make them, but *principles* of construction, and then sets forth illustrations of the different ideas used by some of the most successful bee-keepers in the land, leaving the reader to select the hive best adapted to his locality and notions. Among those mentioned are various styles of Langstroth; the Heddon, the Danzenbaker, the Dadant, followed by a discussion of the general principles that should go to make a double-walled hive for northern localities.

Honey itself, under that heading, occupies an important place in the new book. Following this there is a discussion of honey as food, honey for cooking, and honey preferable as a dietary to the common sweets that require greater effort on the part of the digestive organs to assimilate.

The new book contains the same number of pages as the old one, and will be sold at the same price—$1.20 postpaid; or clubbed with GLEANINGS IN BEE CULTURE for one year for $1.75.

FOR SALE CHEAP.

Two hundred empty combs on Hoffman frames at 10 cents each. Also 200 shallow half-depth L. extracting-combs at 7 cents. Free from any disease. Also 500 lbs. of extracted basswood and buckwheat honey mixed, in 12-lb. cans, at 8 cents a lb., 10 cans in a box. Speak quick.

Thos. DeWitt, Sang Run, Garrett Co., Md.

SPECIAL NOTICES BY BUSINESS MANAGER

THE PRICES ON SEED POTATOES FOR NEXT YEAR'S PLANTING.

At present writing I have not seen any thing suggesting what the prices will be; but if any of the friends want potatoes for planting right off, I will fill orders at last season's prices as found in our seed catalog. If we find later they are cheaper I will refund the overcharge. There will be a good many seconds in consequence of the drawbacks mentioned elsewhere in this issue.

ADVANCED PRICES.

In addition to the advanced price lists already published in this department, we expect to have others ready for publication in our October 1st issue. Lumber continues to advance, and it is impossible to tell where the end will be. If a few more dollars per thousand feet be added to the price before the end of the year we may find it necessary to again mark up our schedules before printing our catalog for 1900. It is practically certain prices will be no lower till after next season, if at all, and they are liable to be higher. You will do well, therefore, to look ahead and order next season's supplies soon.

NEW PRICES ON SECTIONS.

The new prices on sections, made necessary by higher price of lumber, are as follows up to 10,000 lots: Any width of 4¼x4¼, up to 2 inches:

	No. 1.	No. 2.		No. 1.	No. 2.
100.........	$ .50	$ .40	1000.........	$3.50	$3.00
250.........	1.00	85	3000......@	3.25	2.75
500.........	1.75	1.50	5000......@	3.15	2.65

10,000—No. 1, @$3,00; No. 2, @$2.50.

3⅝×5×1½ plain, same price; 4×5×1⅜ plain, 10 cts. per 1000 advance. Same extras for odd sizes as heretofore. Prices of larger quantities on application.

CONVENTION NOTICES.

The annual meeting of the Nebraska Bee-keepers' Association will be at York, Neb., Sept. 20 21, 1899.

E. Whitcomb, Pres.

L. D. Stilson, Sec'y.

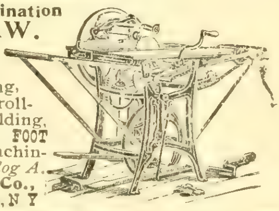
The annual meeting of the Northern Illinois Bee-keepers' Association will be held in the Court House, in Rockford, Ill., on Tuesday and Wednesday, Oct. 17 and 18, 1899. All are cordially invited

B. Kennedy, Sec.

New Milford. Ill, Sept. 6.

Hybrid and Mismated Queens for Sale

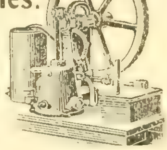
Mismated Italian queens for 25 cts; hybrids for 15 cts. C. G. Fenn, Washington, Conn.



Union Combination SAW.

For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line FOOT and HAND POWER machinery. *Send for Catalog A.*

Seneca Falls Mfg. Co.,
44 Water St. Seneca Falls, N Y



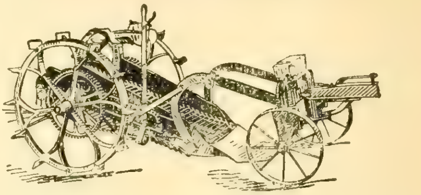
Pierce FARM Engines.

3-4 and 1 H. P. For Separators, Churns, etc. Stationary to 20 H. P. Pumping Engines all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO.,
Box 17, Racine, Wis.

Advertiser's Department of Short Write-ups.

How are you Going to Dig your Potatoes?



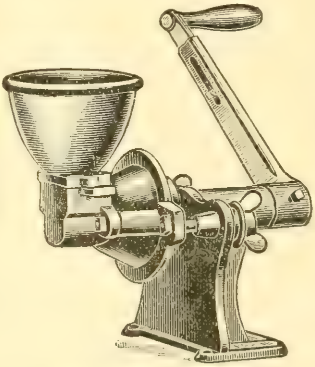
It will be time very soon to dig your potatoes; and, in fact, in some places it is time already. If you want something that will put the potatoes *all* on top of the ground, and do it, too, with one good strong team, you probably can not do any better than to use the Dowden potato-digger, made by the Dowden Mfg. Co., Prairie City, Iowa. Drop them a postal card, and they will cheerfully give you all the particulars, answering every question anybody will probably ask in regard to the machine. Mr. A. I. Root, of the A. I. Root Co., is using one with excellent satisfaction in digging his crop of potatoes grown expressly for seed.

This is What the Reliable Co. Say of Themselves.

It is not a question among successful poultrymen whether green cut bone is profitable to feed. That has been established long, long ago, and admits of no doubt. But it is of great importance that the bone-cutter selected should be the best, with all the up-to-date improvements.

The F. W. Mann Co. were the originators of the bone-cutter, have had the largest experience, and have wonderfully improved their opportunities. They have always led, and by surrounding themselves with the best brains, skilled workmen, and the very best material, the bone-cutters they offer this season are better than ever. It was once said not long ago by the editor of one of the leading poultry-journals, that "Mann's bone-cutter was as far ahead of all others as an express train is ahead of a two-horse team." It has been the purpose of this company by fair dealing and first-class goods to foster such sentiments and to maintain the prestige so long accorded to them.

To avoid the great waste in feeding they invented and placed on the market their patent swinging feed-tray. The large sales that followed attest its popularity among the fraternity.



Do It Yourself.

Be your own Miller....

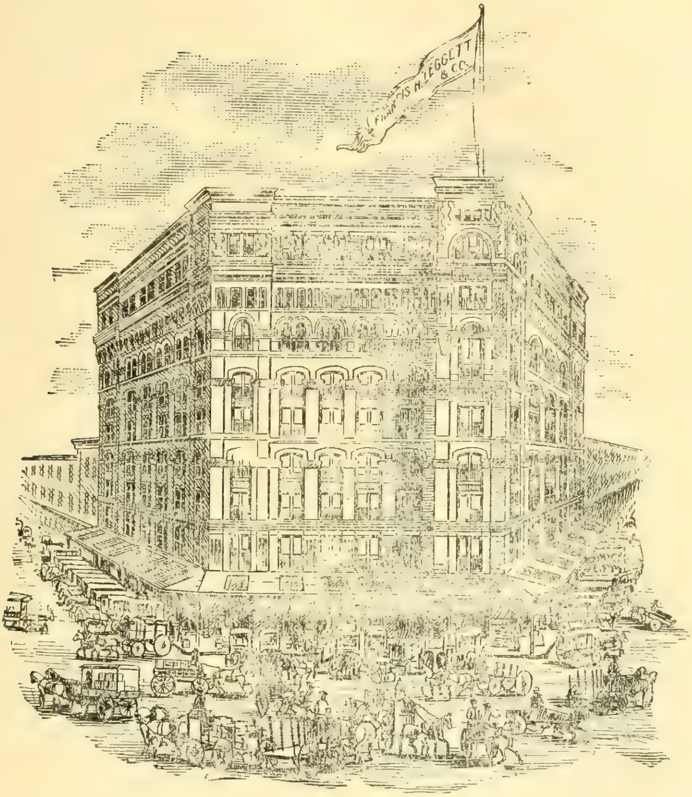
Then you know what you're getting, and get it fresh and save money too.

The Tortilla Mill is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**

Address **The Frank Machinery Co., Buffalo, N. Y.**

FRANCIS H. LEGGETT & CO.,

WEST BROADWAY, FRANKLIN AND VARICK STS.,
NEW YORK.


FRANCIS H. LEGGETT & CO.

Wholesale
Commission
Department.
Maple Sugar,
Maple Syrup,
Beeswax,
Honey.

CAR LOTS A SPECIALTY.

HONEY Our statistics show an ever growing demand for honey among consumers, and we anticipate a period when honey will be as common and necessary a dish upon dining tables as butter is now. Our enormous dealings in honey have constrained us to separate this product from our general stock of foods, and organize a

HONEY DEPARTMENT in which we handle honey by the crate, barrel or car load We purchase from the producer only, for our own account for cash, or receive honey upon consignment, under limitations of selling prices, with liberal cash advances when requested. Quotations furnished upon application, for any variety or quantity of honey, either buying or selling. We are represented in every state of the union, as well as in many European states Over one hundred of our men are constantly travelling amongst the retailers and jobbers of groceries in the United States. In this way we find an outlet for all grades of honey. We would say to shippers that the market at present is in good shape for new **EXTRACTED** or **COMB HONEY.** We can also market your **MAPLE SYRUP** and **MAPLE SUGAR,** our dealings in these are very heavy. We extend thanks to our shippers for favors of the past, and hope for a continuance of their shipments.

FORTY PICTURES.

The editor of the Bee-keepers' Review, in July last, spent nearly three weeks with note-book and camera among the bee-keepers and supply-manufacturers of Wisconsin, bringing home with him many items of interest and value, and about forty views of apiaries, hives, factories, etc., all of which will eventually find their way into the Review. Arrangements have also been made with some of the best bee-keepers of Wisconsin to describe, in the Review, before the opening of another season, the methods whereby they have been so successful. If not a subscriber send $1.00, and the Review will be sent you from now to the end of 1900—you will get the rest of this year free. You can also get the Review from now to the end of 1900, and one of those queens of that superior stock that I have been advertising, for only $2.00.

W. Z. Hutchinson, : : : Flint, Michigan.

Queens by Return Mail.

Daughters of best imported Italian queen mothers; reared by Doolittle method; warranted purely mated to drones of imported stock from a different source—hence, a direct cross. Fourteen years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens 50 cts. each. Safe delivery and satisfaction in every case, or money refunded.

L. H. Robey, Worthington, W. Va.

CHAS. ISRAEL & BRO.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.

Honey and Beeswax.

Liberal Advances made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

TWO HUNDRED
Extra-Good Breeding Queens

The same as I sent A. I. Root Co. Ready Sept. 20. $1.00 for one queen; three queens, $2 75.

H. ALLEY, WENHAM. MASS

Apples for Sale.

By the barrel or in bulk, in car lots or less. Good late-keeping winter fruit. Baldwins, Greenings, Northern Spy, and all leading varieties.

F. W. DEAN, New Milford, Pa.

Here is the Thing You were Looking for the last winter

The New Champion Winter-case

which does away with all unnecessary work, and in which the bees will not die in the coldest winter. Send for special prices on quantity wanted.

R. H. SCHMIDT & CO.,
Sheboygan, = Wisconsin.

Root's Goods for California.

We have just received a large carload of sections, extractors, smokers, veils, etc., direct from the factory, and are prepared to supply bee-keepers with the same promptly. Do not send a long distance and pay high freights. Write for our prices.

M. R. MADARY, = Fresno, California.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—For cash, No. 1 white honey in Danz. 4×5 plain sections. Write for particulars. Four sizes of Prize cartons for comb honey, and 66-page book, "Facts about Bees," for 6 cts. in stamps.
F. DANZENBAKER, Box 66, Washington, D. C.

WANTED.—To exchange my Common Sense non-drip shipping-cases, holding 18 1¾-inch wide, or 16 wider sections, put up in lots of 50, laid down at your station for 8 cts. each, in exchange for No. 1 white and fancy comb honey at right prices in any quantity.
B. WALKER, Evart, Mich.

WANTED.—To exchange a beautiful parlor heater (direct from factory) for beeswax.
L. L. ESENHOWER, Spring City, Pa.

WANTED.—To exchange 3-band or golden queens bred in separate yards, tested or untested, for any thing useful to a bee-keeper.
JNO. M. DAVIS, Springhill, Maury Co., Tenn.

WANTED.—To exchange Barnes No. 7 improved scroll-saw (price when new $15), in good condition, for Cowan rapid reversible extractor in same condition, or offers. Address
W. J. FOREHAND, Fort Deposit, Ala.

WANTED.—To exchange Barnes combined saw and 38-40 caliber Marlin repeating rifle.
ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To buy or rent a small farm in a good location for bees, with a bee-yard on place.
J. E. HENDERSON, Elm Grove, Ohio Co., W. Va.

WANTED. — To exchange piano, organ, graphophone, or other articles for first-class sections, comb foundation, queen and drone traps, Clark's smokers, and other bee-fixtures. Address
F. C. BREWER, Parkesburgh, Pa.

WANTED.—To exchange an X-ray apparatus, in good condition, for typewriter. For particulars, address
R. M. MURRAY, Ada, Ohio.

An Extra Offer.

At this time of the year queens can be reared at a less cost than earlier in the season, hence I am going to make a little better offer on those queens of that superior stock than I have been making. I shall not make any reduction in the price of the queens themselves, as a queen alone will be $1.50; but, for $2.00, I will send a queen, and the Review from the time the order is received to the end of 1900!

W. Z. Hutchinson, : : Flint, Michigan.

Bee ⁂ Supplies.

Root's Goods at Root's Prices.

POUDER'S HONEY-JARS,
and every thing used by bee-keepers.
Low freight rates; prompt service. Catalog free.

Italian Queens, 4 and 5 banded, not a hybrid in the yard. Untested, 75c. Tested, $1.00.

WALTER S. POUDER,
512 Massachusetts Ave., Indianapolis, Ind.

In writing, mention Gleanings.

Special Offer... For the next 60 days we will sell one warranted queen at 50 cents. These queens are warranted purely mated; half dozen, $3.00; dozen, $5.50. Address

LEININGER BROS., FT. JENNINGS, O.

BLOOD DOESN'T come out of turnips, nor GOOD QUEENS from poor stock, shiftless methods, or unfavorable conditions. My queens are reared RIGHT—by Doolittle's method—either from the best breeder of my golden stock or one of the BEST queens Doolittle ever owned. Your choice. They are large vigorous *business* queens, from selected, large, well-fed cells. WARRANTED queens, 50c each; dozen, $5.50. SELECT WARRANTED, 75c; six for $4.00. Sent promptly. Free catalog. Special rates for large numbers.
J. B. CASE, Port Orange, Fla.

Cartons,
Shipping-cases,
Honey-jars,
Apiarian Supplies.

Pure honey, basswood, in cans and kegs, 120 lbs. at 8½c; sample, 5c.

I. J. Stringham, 105 Park Place, N. Y.

QUEENS! QUEENS!

Untested Italians, 50c each; tested, $1.00 each. Queens large, yellow, and prolific. Address

E. W. HAAG, - - CANTON, O.

QUEENS, QUEENS, QUEENS.
By Return Mail.

Bred from imported mothers; dark leather-colored stock; extra honey-gatherers; also from light yellow and albino strains at very low prices. My stock is of the best. Forty years' experience warrants me in saying this.

Select tested....each, $1.50.
Warranted purely mated....each, .75.
Warranted purely mated....six, 4.00.
Warranted purely mated....dozen, 7.00.

Send for 40-page catalog of bees and queens; also a full line of bee-keepers' supplies, including The A. I. Root Co.'s goods at their prices.

W. W. CARY, = Lyonsville, Mass.

Your Need is shipping-cases, some five-gallon cans, a lot of those new Danz. cartons. Send for sample carton and prices, and be surprised.

Our Desire is to satisfy your need. We can do it with Root's goods at Root's prices. Cash paid for wax. Send for catalog.

M. H. HUNT & SON, BELL BRANCH, MICH.

BEE-SUPPLIES.
ROOT'S GOODS--ROOT'S PRICES

MUTH'S HONEY-JARS,
MUTH'S HONEY-EXTRACTORS,
LANGSTROTH HIVES,

and every thing pertaining to same; in fact, every thing used by bee-keepers. Send for our catalog.

◆

WANTED---EXTRACTED HONEY.

I am now in shape to BUY extracted honey, either in large or small lots. Parties in the South, or in Kentucky, Indiana, Ohio, or West Virginia having any to offer will do well to sell to me, as Cincinnati is the greatest market for extracted honey in the States. Submit a small sample, stating quantity, style of package, and price expected.

◆

C. H. W. WEBER,
Successor to Chas. F. Muth & Son and A. Muth.
2146-8 Central Ave., Cincinnati, O.

References.—Western German Bank, Brighton German Bank Co., of Cincinnati, Ohio.

In writing, mention GLEANINGS.

FACTORY
OFFICE
WAREHOUSE

Bee-hives, Bee-keepers' Supplies

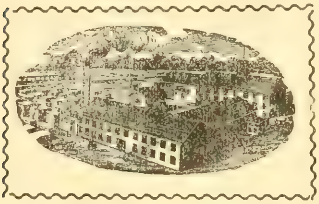
We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee keepers' Supplies.

We are Prompt Shippers.

Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.



BEE-SUPPLIES.

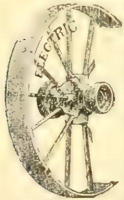
We have the best-equipped factory in the West. Capacity —one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **Tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

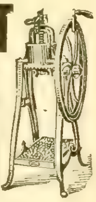
Address E. KRETCHMER, Red Oak, Iowa.

In writing advertisers, please mention Gleanings.



IF YOU COULD buy a wagon that had everlasting wheels **WOULD YOU DO IT?** Wouldn't it be economy to do so? Well here's how: Buy a set of **Electric Steel Wheels** They can't dry out and get loose; they **CAN'T ROT OR BREAK DOWN**. Don't make any difference what wagon you have we can fit it. Wheels of any height and any width of tire. May be the wheels on your wagon are good. If they are buy **A SET OF THESE** and have two wagons—a low one and a high one. Send for catalogue, it is free.

Electric Wheel Co., Box 95 , Quincy, Ills.



HENS LAY BEST

—in fact they lay double the eggs winter and summer when fed **Green Cut Bone.**

Mann's New Bone Cutters

cut all hard and soft bones, meat, gristle, &c., fine, fast and without choking and run easy. Clover cut with our **Clover Cutters** helps wonderfully. Mann's Granite Crystal Grit and Feed Trays too. Catalogue FREE.

F. W. MANN CO., Box 37, Milford, Mass.

In writing, mention Gleanings.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

SWEET-CLOVER SEED in the hull for sale at 5 cts. per pound. For orders of 50 lbs. or more, address JOS. SHAW, Box 64, Strong City, Chase Co., Kan.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

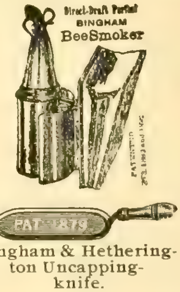
Smoke Engine {largest smoker made}	4-inch	stove.	Doz	$13.00;	each, by mail,	$1.50
Doctor	3½-in	"	"	9.00;	"	1.10
Conqueror	3-in	"	"	6.50;	"	1.00
Large	2½-in	"	"	5.00;	"	.90
Plain	2-in	"	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	"	4.50;	"	.60
Honey-knife			"	6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR ; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

COLUMBUS.—Honey still scarce with us, and demand good. Fancy white, 15; No. 1, 14; amber, 11@12½. Are in the market for local or car-lot shipments of comb honey. EVANS & TURNER,
Sept. 19. Fourth and Town Sts., Columbus. O.

SCHENECTADY.—But very little white comb honey in sight, and that of inferior quality. A fancy article would command a high price. Buckwheat not so scarce, and selling at 9@10; extracted light, 8@9; amber, 7@8; dark, 5½@6. C. McCULLOCH,
Sept. 21. Schenectady, N. Y.

PHILADELPHIA.—Honey arriving rapidly; demand just springing up; prices very firm. We quote fancy comb, 15@16; No. 1, 13@14; amber, none in; extracted white, 8; amber, 7; dark, 6. We are producers of honey—do not handle on commission.
WM. A. SELSER,
Sept. 21. 10 Vine St., Philadelphia, Pa.

ALBANY.—Honey keeps very firm, with an active demand. Comb honey has sold actively at the following prices: Fancy white comb, 15; No. 1 white, 13@14; mixed, 11@12; dark, 10@11. Not much extracted in as yet, but little coming. We quote white, 8½@9; amber, 7½@8; dark, 6@6½. MACDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
Sept. 20. Albany, N. Y.

BOSTON.—New comb honey is coming in very slowly, showing a general shortage all over the country, and we strongly advise shipments to this market, as prices will range well right through the season. We quote our market: Fancy white comb, 1-lb. sections, 16; A No. 1, 14@15; No. 1, 13@13½; No. 2, 11@12; light amber extracted, 8@8½. Beeswax, 27.
BLAKE, SCOTT & LEE,
Sept. 21. 57 Chatham St., Boston, Mass.

CHICAGO.—The receipts are increasing, and sales are becoming more frequent. Fancy white comb brings 15; No. 1, white, 13@14; amber, 10@12; dark, 9@10; extracted white, in cans, 7½@8; same in barrels, 7@7½; amber, 6½@7; dark, 6@6½. Beeswax, 26. Shipments are coming to hand in good order, and when properly prepared will do so until we get zero weather, after which it is liable to crack, and break away from frames. R. A. BURNETT & CO.,
Sept. 20. 163 S. Water St., Chicago, Ill.

NEW YORK.—We have a good demand for all grades of comb honey, and same finds ready sale at following prices: Fancy white, 15c; No. 1 white, 13@14; fancy amber, 11@12; No. 1 amber, 10@11; buckwheat, 9@10. Extracted is also in good demand for all grades, excepting buckwheat, at unchanged prices, Now is the time to ship. Write us what you have to market. We are buyers for spot cash. Beeswax dull at 25@26. HILDRETH & SEGELKEN,
Sept. 20. 120 and 122 W. Broadway, New York.

NEW YORK.—Comb honey, white, fancy, 14@15c; No. 1, 12@13; No. 2, 10@11; amber, fancy, 11@12; No. 1, 9@10; mixed, fancy, 10@11; No. 1, 8@9; buckwheat, fancy, 9@10; No. 1, 8@9; New York State extracted, white, 7@8; light amber, 6½@7½; buckwheat, 5½@6½; Florida extracted, white, 7@7¾; light amber, 6½@7; amber, 5½@6½. Extracted honey, from other Southern States, 60@80 cts. per gallon, according to quality, flavor, color, etc.
FRANCIS H. LEGGETT & CO.,
Franklin, West Broadway, and Varick Sts.,
Sept. 21. New York City.

MILWAUKEE.—As yet the demand is not very urgent for honey, yet the receipts are taken nearly as fast as received, especially if it is fancy, while the inferior grades are not desired, and neglected. And it seems proper to advise shippers to send forward their choice honey, and not hold back for higher values, and not allow the consumers to get the idea that honey is a scarce article or being speculated upon. We continue to quote fancy 1-lb. sections, 15@16; A No. 1, 14@15; common or old, 11@12; extracted, in barrels, kegs, and pails, white, 7½@8½; dark, 6½@7½. Beeswax, 25@26. A. V. BISHOP & CO.,
Sept. 19. Milwaukee, Wis.

FOR SALE.—Choice new light amber honey at $4.50 per can of 58 lbs., net. Samples postpaid, 10 cts.
R. & E. C. PORTER, Lewistown, Ills.

FOR SALE.—We have some nice basswood honey in kegs and cans at 8@8½ cts. per lb. Sample 5 cts.
I. J. STRINGHAM, 105 Park Pl., New York.

WANTED.—Comb and extracted honey. State price, kind, and quantity. BLAKE, SCOTT & LEE,
57 Chatham St., Boston, Mass.

WANTED.—Your honey. We will buy it, no matter where you are. Address, giving description and price.
THOS. C. STANLEY & SON, Fairfield, Ill.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
163 South Water St., Chicago, Ill.

WANTED.—Quantity lots of comb and extracted honey. Car lots preferred. B. WALKER, Evart, Mich.

WANTED.—Fancy white comb and extracted honey. Give price, kind, and quantity. C. H. W. WEBER,
Successor to Chas. F. Muth & Son and A. Muth,
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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
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STRAY STRAWS FROM DR C. C. MILLER

ALBIN DROUX says, in *Revue Int.*, that his bees located near a pine forest averaged 33 pounds surplus, while those 1¼ miles from the pines stored nothing. Editor Bertrand thinks it may be that the bees did not find the nectar, because of its lack of odor.

IF THE CONVENTION at Philadelphia was a failure, it wasn't the fault of W. A. Selser and other Philadelphians. But it was very far from a failure. [That is true. We never met at a place where bee-keepers as a whole in the vicinity did more to make us comfortable, and to give us a general good time. Most of the credit, however, should be given to Mr. W. A. Selser and to Mr. Hahman.—ED.]

B. W. HAYCK reports in *American Bee Journal* that a caged virgin queen was forgotten, and liberated after a confinement of seven weeks. Two days later she was seen with marks of fecundation, and after three more days was laying. [This is very unusual. We generally set it down as a rule that, if a virgin queen is not fertilized within two weeks, she probably never will lay fertile eggs. She will either commence laying drone eggs or else the bees will get rid of her.—ED.]

REFERRING to p. 677, I may say that, as a rule, my bees don't swarm before 9 A.M. nor after 3 P.M. If they are foiled in their attempts to swarm, by some device such as a clipped queen, they become desperate and defy some rules. But there are a good many exceptions where there is no interference, and I've had prime swarms at 6 or 7 in the morning, especially on a muggy morning. This summer a prime swarm issued after 4 on a cloudy afternoon, that being its first attempt to swarm, so far as I know.

"I DO KNOW that a wired frame is an expensive nuisance," says T. K. Massie, p. 680. That's the way Canadians and some others talked years ago, friend Massie; but they're wirers now. Please keep things straight. You say, practically, that wiring is a necessity with deep frames; and a thing that's a necessity can hardly be called a nuisance. If you want to insist that shallow frames are better than deep ones, that's another question. [A very large number of bee-keepers have come to the conclusion that it is an expensive nuisance not to have frames wired. This is especially the case for out-yards where hives are hauled, or where frames are extracted on the "slam-bang" plan.—ED.]

FOR SOME TIME the *American Bee Journal* has had a department called "The Afterthought," written by "Cogitator." Said "Cogitator" has confined his "afterthoughts" entirely to previous numbers of the *Journal*, commenting upon them in an exceedingly interesting and sometimes instructive way. "Cogitator" seems now to have given up the work, and one E. E. Hasty has taken his place. Mr. Hasty's initial attempt is so excellent that, if he can keep up the same pace in future numbers, there need be no regret at the early demise of "Cogitator." [Look here, doctor; it seems to me you are trying to "give something away." Better look out, or you will have Bro. York clawing at your bald head.—ED.]

FOLLOWING the Grand Army with the U. S. B. K. A. convention has its disadvantages, but they are far outweighed by the one distinct advantage of low railroad fares that can not be so surely counted upon at any other time. By all means, let the settled policy be to follow the G. A. R. [The only objection that can be urged against following the Grand Army is the inconvenience at hotels, and the general crowd. But we had none of those troubles at Philadelphia; and I think that, in spite of that, Chicago, our next place of meeting, will be big enough, not only to entertain the Grand Army, but the members of the U. S. B. K. A., or what may then be the National Association. —ED.]

PRESSING "barns" to the front is what T. K. Massie says I seem to be doing, p. 680. Hardly that. I recognize good points in them, just as I recognize good points in the Danzy hive. After a trial of two Danzy hives, I conclude that for my purpose the good points are not sufficient to counterbalance their disadvantages, although I have no quarrel with those who prefer them. As yet I am not willing to say I shall adopt "barns;" and until I say so

I'm not pressing them very far to the front. [I have been accused of pressing barns also, doctor; but, like yourself, I have not arrived at the point where I can recommend them. In certain localities I believe they might be *the* hive, especially if extracted honey is the kind to be marketed. I believe in giving every thing a fair show, and sometimes I champion the merits of a certain thing for the sake of drawing out both sides and thus getting at the truth. Whatever I may have said in favor of the barns has been with that end in view.—Ed.]

Commission men are getting the worst of it nowadays. All right, brethren; bat them over the head all you like; but wait till a year comes with big crops and no offers, and you may be glad to have a commission man work for you. I've seen the same thing in years gone by. A scarce year brought into the field many purchasers. Then came a year of plenty, and with few exceptions they dropped right back again into the ranks of commission work, pure and simple. See if it isn't so again. [I'm not one of those who believe that we can dispense with the services of the commission men just yet. Indeed, I do not see how we ever can. But if we can induce more of them to do business on a cash basis it will do away with some of the friction we find here and there.—Ed.]

Bro. Doolittle, you seem to have waited so long before answering my question that you have changed it into another question. You start out all right on p. 684 by saying the question is the yellow-maroon one, and then leave that entirely and answer about pure Italians. You ask where I was in the early seventies. Right here, Bro. Doolittle, and I distinctly remember the discussion about *pure* Italians. But that's not the question. The question for an answer to which I am waiting is this: "*Why didn't you before, in all these years, tell us that Italians were maroon and not yellow?*" [Now look here, doctor; if Bro. Doolittle is made to answer that question, where will this color business end? To even things up I will agree to give him a little bit of space on condition that you will agree to keep mum on the matter, no matter how saucy he talks. Perhaps he will be magnanimous enough to drop the matter where it is.—Ed.]

Foul brood is not slow in its action. Says H. W. Brice, in *B. B. J.*: "Spores require suitable and favorable conditions to supervene for the space of only half an hour in order to transform them into the virulent type known as rods, and these rods are capable of producing two generations every hour of their existence as such! A single spore is thus capable of infecting a whole colony of bees in a week, if it were not for the natural immunity of all living things to disease." [That foul brood is not slow in its action, some of us know to our very great sorrow. When it once breaks out in an apiary it seems to start almost everywhere at once. Years ago, when we had foul brood, after we had discovered it in two colonies we found it in a dozen or two others. After we had cured these up, then there would be a dozen more to take their place, and so on until it went through our apiary. Then for a little time it would break out in isolated colonies.—Ed.]

"Somnambulist," in *Progressive*, enters a protest against "inflated honey reports." A man has an extraordinary yield, and the bee-journals, as if short of other copy, print and reprint the story. Then the manufacturers tell what big piles of lumber are used for supplies, and the commission man says the stock of honey must be enormous, and prices must come down. A good bit in that, Sommy, but there are two sides. It isn't in human nature to catch a big fish and not tell of it. And is it fair to call it "inflated" if it's true? If our business is to receive the recognition we desire from railroads, legislatures, etc., we must let them see that it isn't a one-horse affair. All the same, Sommy, prices ought to go up; and if you keep talking about it that will help to make them go up. [Somnambulist strikes at a good point, and you have fairly put the other side. One thing should be well understood: A large demand for supplies during the season does not necessarily indicate a big honey-flow. In 1897, when so many factories were running night and day, the season was almost a failure.—Ed.]

Dr. Dzierzon relates in *Ung. Bienen* that he removed a queen from a colony, and the bees reared a new one that was lost on her wedding-trip. Opening the hive to give them some fresh brood he was surprised to find three fresh queen-cells with larvæ, from one of which a good queen was reared. He thinks that the three eggs from which the three royal larvæ came had been kept for three weeks after the removal of the queen. If correct, that may help to solve some of the mysterious appearances of queens in queenless colonies, and impure stock from purchased pure queens. [This same Dr. Dzierzon, a name that stands almost beside that of Langstroth, and who practically *is* the Langstroth of Germany, proposed a set of theories some thirty odd years ago which go to make up the very foundation of scientific bee-keeping. It is only within recent times that any one has risen to disprove any one of them; but so far as I have been able to determine they are not disproven by considerable. He has now proposed a new theory, and it seems one of the most reasonable that has yet been proposed for explaining how fertile eggs are sometimes found in a colony when no laying queen has been in it for a good many days. Poultry eggs will keep good for hatching for a considerable length of time; and why shouldn't the eggs of a queen, under favorable conditions? Why not call this Dzierzon's new theory, considering the fact that his old theories have come to be accepted as true?—Ed.]

J. T. W., Va.—It is a little bit late to strengthen up your nucleus by ordinary stimulative feeding. The only thing you can do is to unite it with some other weak stock. If you haven't any other bees, put this nucleus in a double-wall hive and pack it well.

PICKINGS

FROM OUR NEIGHBOR'S FIELDS.

BY "STENOG."

The chilly rains and gloomy fogs
Are heralds of a freeze;
"Daub up the cracks, pull down the quilts,"
Say all the thoughtful bees.

It's up-hill work to apologize; but a friend in Florida points out the fact that I alluded to Mr. Hill, the editor of the *American Bee-keeper*, as having gone to Cuba instead of Florida. Just allow me to transfer Mr. H. up to the latter place, and my up-Hill work will be done.

AMERICAN BEE JOURNAL.

A. H. Duff thinks the advantages of keeping bees in a house are many, as work can be done with them every day in spring, summer, and fall. There is little doubt that house-apiaries are receiving more favorable attention lately than for some years past. His article was written for the *Agricultural Epitomist*. It would be a good plan if more of our bee-keeping friends would write for the agricultural press.

* * *

A correspondent tells Mr. Doolittle that he has an occasional crooked comb when not using separators, and wishes to know how to avoid such. Mr. D. replies very pointedly:

> The very admission of both yourself and the writer quoted, should convince you that the only way to produce section honey, in the most marketable shape, is to *use separators*. When a person admits that occasionally he has crooked combs by the non-use of separators, I always read between the lines that those occasional crooked combs can be multiplied by *ten* and not be far out of the way. And then those occasional crooked combs condemn the use of any system which gives an occasional faulty thing, when there is a system equally good in every way that does not give a single faulty section along the line of crooked combs.

FOREIGN MATTERS.

Our French exchanges show a great amount of work in collecting information relative to honey and bees. Bee-keepers of that country, as well as of Germany, seem to be closely related to each other through the numerous associations they have formed. If a new use for honey is found it is immediately printed and passed around. Mr. J. B. Leriche, an eminent bee-keeper of France, has the following to say relative to honey; and although some of it is familiar to most of us, it is a good plan to give it to those who may not have seen it before. I translate it from the *Revue Eclectique*, of Paris, one of the best bee-journals printed:

"Honey is a healthful, concentrated, easily assimilated food, offered to man by nature, all prepared, extracted drop by drop from myriads of flowers. Our ancestors made of it their favorite food. They knew no other sweet. The introduction of beet sugar has lessened the use of honey, so the latter is hardly ever found now except in the home of the bee-keeper or in certain medicines, or on the table of a few who know its virtues. We should go back to honey, for it is well known that this food, without rendering necessary any insalivation or digestive work on the part of the stomach, excites nervous energy, gives mental force and tone to the vital functions, and is very beneficial to persons of sedentary habits or those doing much headwork. All those who suffer from disorders of the stomach, and who have difficult or bad digestion, or those subject to constipation, should use honey daily; and after several months they will find the digestive organs restored to their normal condition. But the use of it must be daily and prolonged.

"To live long, one should take, every morning, some hot milk, sweetened with a spoonful of honey, and dip bread in it. Taken at night, honey favors digestion and wards off sleeplessness. When Julius Cæsar dined with P. Rumillius, to celebrate the 100th birthday of the latter, Cæsar asked him by what means he had preserved his strength of mind and body. 'By eating honey,' replied the old Roman.

"But honey is not only a good food but a good medicine, curing, without drugs, disorders of the stomach, chest, and of the voice, such as gastritis, bronchitis, colds, asthma, and grip. The formic acid with which it is impregnated by the bees makes of it an antiseptic, purifying the disordered mouth and breath. Rheumatism is practically unknown among those who eat much honey. But the honey must be pure; and one buying it should be sure of the standing of the house selling it."

In the same journal Mr. Drappier gives good directions for wintering, preparations for which he begins in September. The first thing to be seen to is plenty of food. By waiting later the cold is liable to prevent the bees from uncapping the honey; and uncapped honey before winter easily ferments, and may induce spring dwindling. One writer says bees can winter only on empty frames; but at the same time their honey should be so placed as to surround the cluster, and as near them as possible. He feeds from 30 to 40 lbs. per colony. Although bees use but little food in winter he gives them enough so he will not have to feed in spring. He advises against spring feeding, as it may induce an abnormal development of brood. The best colonies will be hived in September on a maximum of 12 frames. Will it be necessary to remove the empty frames? Mr. D. says he does not. Mr. Bonnier has shown that a filled frame is equal in value to a partition so far as preservation of heat is concerned. That is, empty frames, instead of taking away warmth, tend rather to conserve it. Besides, frames of comb in the hives are better protected in fall, winter, and spring, against the moth-miller, by the bees running over them, than the bee-keeper could do it himself. This is for large colonies. Small ones run all kinds of risks. The existence of drones in a hive in September is presumptive evidence of queenlessness. Hives in the open air should be well protected on top. All cracks should be plugged up. Repaint covers, if necessary, so that not a drop of water can get through.

These foreign journals give a vast amount of advice to those who must be beginners in bee-keeping Every month has its detailed account of what to do and how to do it. In this regard they set a good pace for American journals. It might be remarked, too, that the foreign journals draw more from sources outside of beedom than do those of America ; and there seems to be a more intimate touch between the government and the various bee-associations there than here. We get some ten French and German bee-journals here, besides one Spanish and one Italian. The French in particular are very interesting. Their printing is extremely accurate, an error being almost unknown, which remark applies to all the foreign journals I have seen.

GENERAL CORRESPONDENCE

FOUNDATION; THE OLD VERSUS THE NEW PROCESS.

Independent Experiments Carried on in Canada.

BY JAMES SHAVER, IN THE CANADIAN BEE JOURNAL.

[By the courtesy of the *Canadian Bee Journal* we are enabled to reproduce a series of engravings in an article that appeared in that journal for September. The

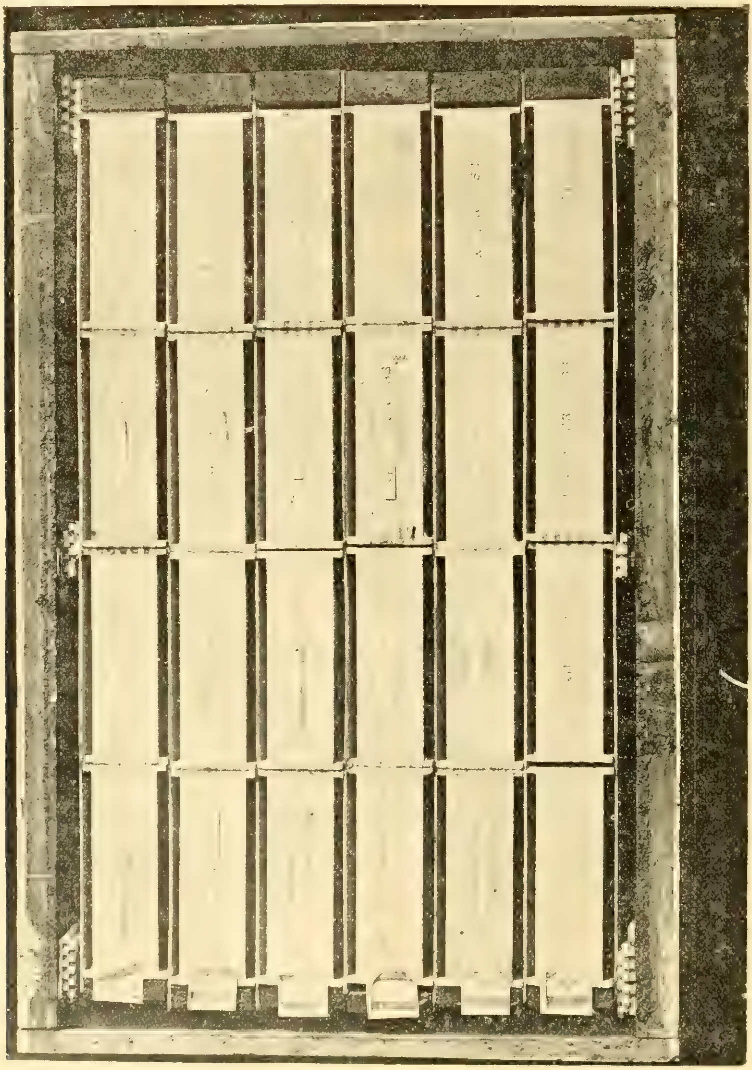


FIG. 1.—SUPER SHOWING THE RELATIVE PLACES OF THE FOUNDATIONS AS ON THE HIVE.

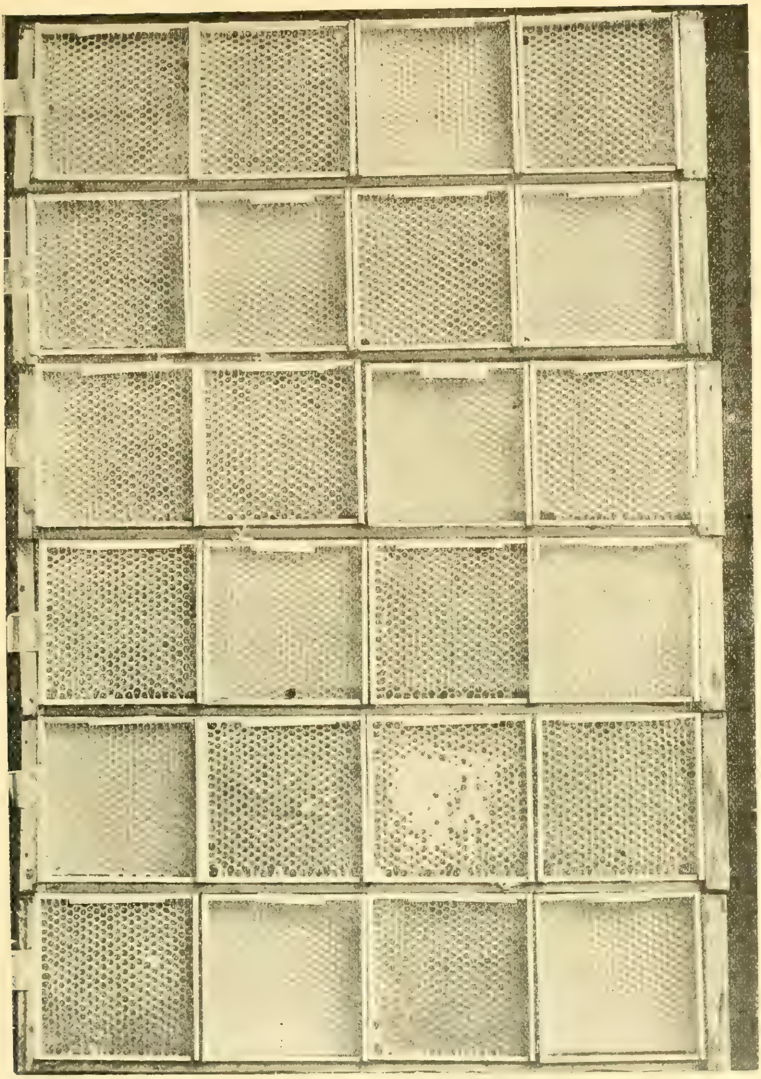


FIG. 2.—SECTIONS AS LEFT BY THE BEES WHEN REMOVED.

NEW PROCESS.—Line A, sections 1, 2, and 4. Line B, sections 1 and 3. Line C, sections 1, 2, and 4. Line D, sections 1 and 3. Line E, sections 2, 3, and 4. Line F, sections 1 and 3.

engravings are taken directly from photos, and will speak for themselves In view of the fact that it might be considered that we have an ax to grind, I will offer no comment one way or the other; but I will explain that the big letters, A, B, C, in Figs. 3 and 4, and showing very dimly, run from left to right. The letter A, for instance, in Fig. 3, takes in the four sections immediately above it. The same is true of B and C. By carefully studying the pictures one can readily see which foundation seems to be the more pliable and workable.—ED.]

The relative values of the above for use in the comb-honey supers has been the subject of no little discussion and conjecture among our bee-keeping fraternity, and especially at our last meeting of Ontario it was brought forward with renewed vigor. Quite a number advocated strongly the old system—so strongly, indeed, that I myself was almost a convert to their opinions. What their reasons were I don't know. I certainly believe that they were honest; but since then I have been doing a little experimenting that at least satisfies *me* on the point, and may perhaps be worthy of the consideration of others. On June 24th of this season I placed on one of my best colonies a super with sections and full sheets of foundation, old and new process placed side by side alternately. The "new process" was that manufactured by the Goold, Shapley & Muir Co., bought from their ordinary stock. They call it their "extra thin," and runs about thirty sheets to the pound. The old proces, was supplied to me by a bee-keeper friends

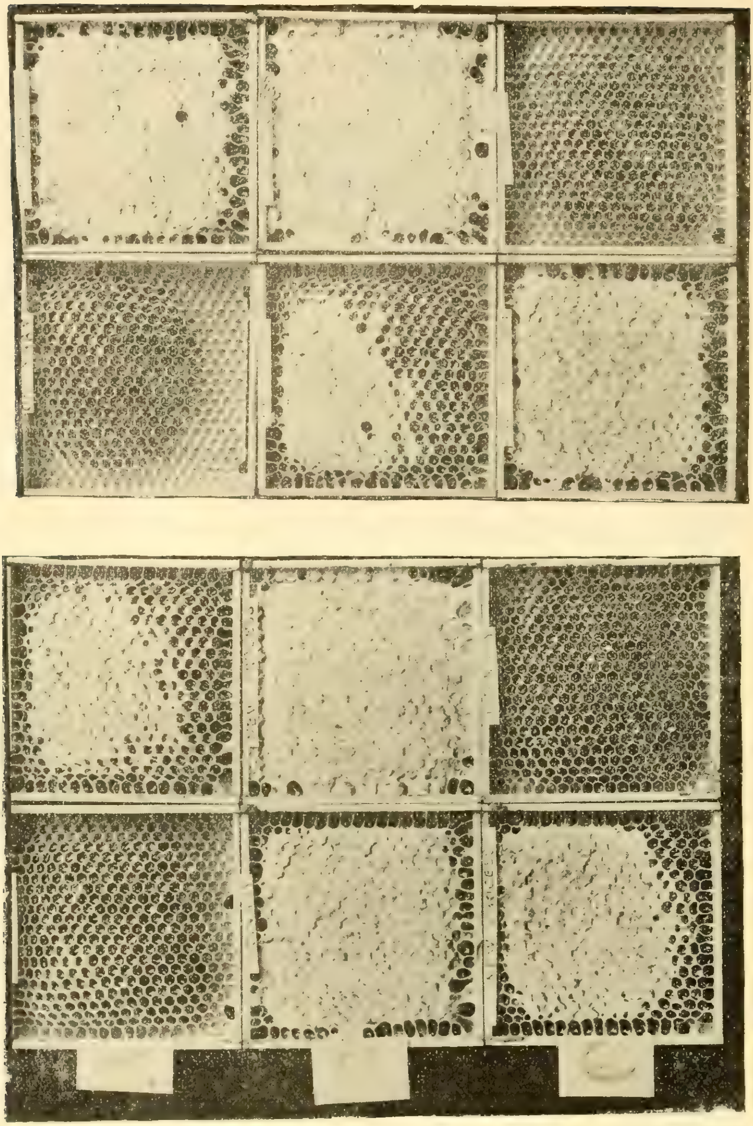


FIG. 3.—TWELVE SECTIONS TAKEN FROM SECOND SUPER AFTER CLOSE OF HONEY-FLOW.
Line A, sections 2 and 4, New Process. Line B, sections 2 and 4, New Process. Line C, sections 1 and 4, New Process.

himself a manufacturer of and a believer in it. He like myself was interested in the matter, and wished that an impartial test might be made, asking me to conduct it. The foundation furnished by him was very fine indeed. I considered it as being about the best I had ever seen, well made, well colored, and ran about 20 sheets to the pound. I examined the super two days after, and found that the bees had taken well to the "new process," drawing it out nicely, while they had scarcely touched the old. I was somewhat surprised at this, as it was not altogether what I expected to find. On the day following, the 27th, I again examined them. The bees had continued to draw the new process ahead of the old. Two days afterward I removed the super and had the accompanying cuts taken of it. They will explain themselves.

Fig. 1 shows the super as placed on the hive, and the relative positions of the foundations.

Fig. 2 shows the sections as left by the bees when I removed them June 27. You will note that the cut shows the sections occupying the same positions to one another as in the super.

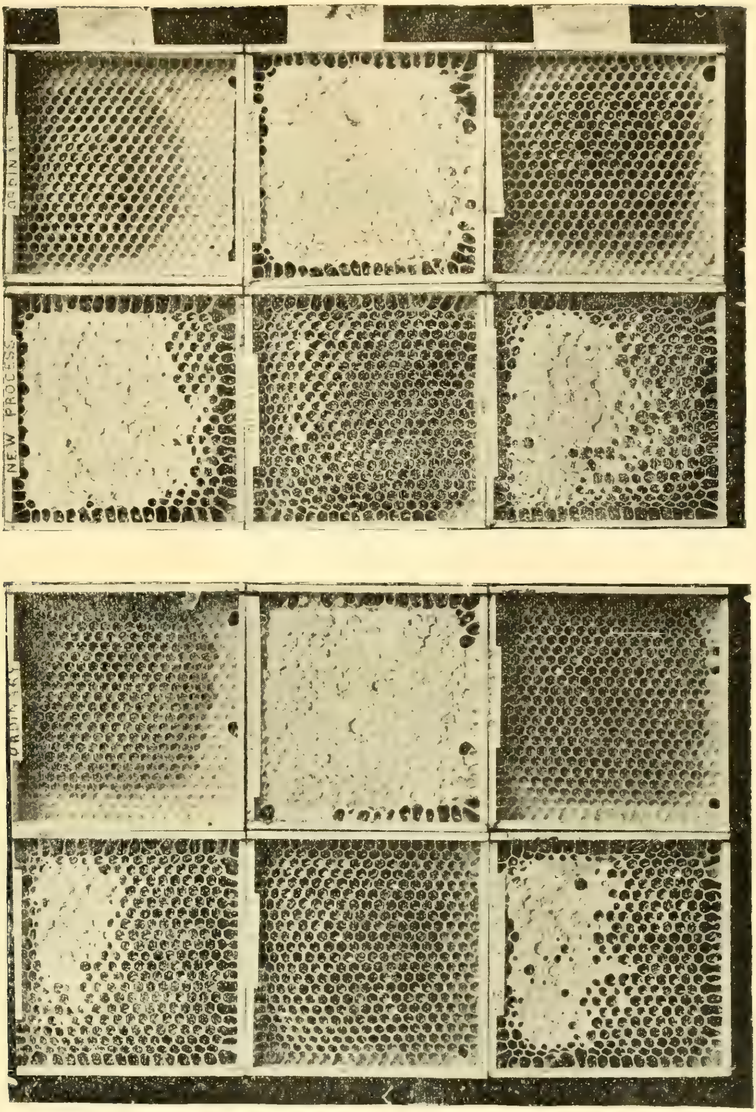


FIG. 4.—OPPOSITE SIDE OF SECTIONS AS SHOWN IN FIG. 3.
Line A, sections 1 and 3, New Process. Line B, sections 2 and 4, New Process. Line C, sections 1 and 3, New Process.

To carry my experiment still further, and lest there should be any thing in the surrounding conditions to make the difference, I replaced the super by another filled with sections and full sheets of both kinds of foundation as before, only using a heavier grade of the "new process," about 26 sheets to the pound. This super I left on the hive until the honey-flow ceased.

Figs. 3 and 4 show results. In this case I did not think it necessary to show super in full, so I have given cut of both sides of twelve sections as left by the bees, four from each side and four from the center of super. You will notice that in each case the bees have taken to the new process in preference to the old, and followed the same until completion. I intend taking the super and section with me to the Toronto exhibition, where any of the friends can see for themselves. I will reserve them also for our winter convention at Brantford to give our worthy "Senators" an opportunity of examining and discussing the value of the experiment.

Cainsville, Ont.

RAMBLE 176.

Some of Rambler's New Inventions.

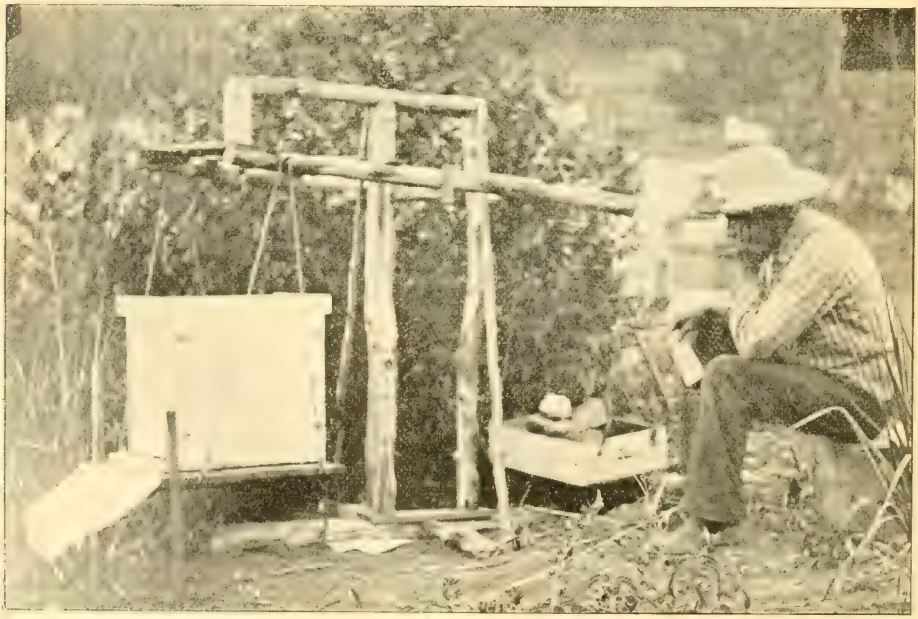
BY RAMBLER.

The various devices illustrated and described in the last Ramble all look fairly well constructed, and some effort was made with plane and paint to make them so ; but the leading device presented to you this time will not fall under that rule, for it is a rough-and-ready affair. As the illustration indicates, it is a bee-hive balance. When Mr. McNay, of Wisconsin, and I were perambulating around the country we were talking about the sudden yields of honey that sometimes favored the bee-keeper, and how handy it is to have a colony placed upon scales in order to tell just how many pounds the colony was gaining or losing each day. My Wisconsin friend said he had a colony on scales all through the honey season, and a glance at it showed whether the conditions were encouraging or discouraging. The conditions have always been so encouraging in his apiaries that he could afford to pay a good price for proper scales. But, alas! no California bee-keeper can indulge in such a luxury these hard times. I did not wish, however, to be behind any Wisconsin man in regard to scales, and began to devise ways and means to make a balance that any poor California bee-keeper can make at light expense, and one that would attract the attention of all beholders, and thereby enable us, in spite of hard seasons, to keep up with and be a little ahead of the times.

A mountain fire had spent its fury in a little canyon near my apiary, and left quite a number of young sycamore-trees dry and bare, and from these I made the framework of my balance. There is no use for me to enter into details of construction, for the photo faithfully represents every part, and any one handy with saw and ax can readily make one.

When in use a hive of bees is placed upon the swinging platform as shown. Now balance the colony or take off the tare by placing stones in the box at the far end. Put in enough stones to a little more than balance, and elevate the hive to the highest point. Now hook on a spring balance and adjust aright, and every pound of honey gained will be shown. If in doubt about the season, it is well to adjust the balance so that the hive will weigh six or eight pounds ; then the balance will show loss or gain. This whole affair cost me just ten cents, the price of the spring balance, which was purchased at a ten-cent store. If the constructor wishes to be a little more extravagant, a 25 or even a 50 cent balance can be used. Then I spent half a day in the construction of it ; and, as the name signifies, it is rough and ready. It is not so accurate as a five-dollar scale, but it is sufficiently so to show the half-pounds ; and, accordingly, to judge of the conditions of the apiary it will answer the purpose very well until we get as rich as those Wisconsin fellows and are able to invest in store scales. As the platforms of this scale have more or less swing to them it is well to drive stakes around them as shown, to prevent any accidents, especially in a breezy location.

This balance has been doing duty for several weeks, and faithfully gives a fellow the blues by recording a loss instead of a gain. The



RAMBLER'S IMPROVISED SCALE.

inventor is sitting near the machine, and that is his pensive attitude when devising new machines.

In the next photo I try to show you another real improvement, but I fear the attitude and the surroundings of the person may cause a smile. The first person who saw the photo said, "Why, that looks like a ghost."

"Alas," said I, "it is a ghost; see how gaunt he is; and that is only a type of a Southern California bee-keeper after these two dry seasons."

The next observer said, "I declare, that fellow looks like an Arab."

I had to agree with that observer too, for the fellow looks as though in feelings he were an Arab. Let's see. The Bible says, "Everybody's hand is against him."

Then an observer sagely says, "That is Giant Despair sitting at the entrance of his cave."

"My friend," said I, "you are mistaken. Giant Despair lives there, but he has gone into the cave with one victim, and this [illegible] bee-keeper is now wai[illegible] his turn."

But, dropping allegory, and turning to facts, I would say that the peculiar place shown is about fifty paces from the apiary, and that hole is a tunnel which has been blasted some three hundred feet into the solid rocks of the mountain, and the object of digging these tunnels is for the development of water for irrigation purposes. As the bucket signifies, that is where I get water; but the pipe leading down is from another tunnel further up the canyon and 400 feet in, and another tunnel further down over 400 feet in. There is over $2000 invested here in tunnels, pipes, and reservoirs, and all for a little water; but this water is as valuable as a gold-mine. A little stream that would almost all go through a goose quill is worth a hundred dollars a year.

But I fear I am digressing, and withholding the information about that new and notable improvement. Well, if you must know, it is all about that bee-veil, and the new feature is in the face of it. The reason why I was led to the study of bee-veils was that the ordinary fine silk net that is used in ordinary bee-veils is so fragile that it breaks open in spots and allows the bees to enter. I have purchased such netting at stores that was, I was going to say, rotten, and I guess that is about as good a term as any to express the quality. A bee keeper in almost any country is liable to get his head against a bush or a limb of a tree, and every bee-keeper knows how handily a twig will catch into a veil and rend it. Then a silk veil is worth from 50 to 75 cents, and is of such value that it ought to last longer. The veil I present in this peculiar illustration has an old material for the back, and a new material for the front — at least I have never heard of its being used for this purpose. It is very thin, very transparent celluloid — as transparent as glass; very light, and quite flexible; and a large piece of it that will enable the wearer to see in every direction costs about 8 cents. The celluloid is attached to common white mosquito-netting. The total cost of material for the veil is about 12 cents; and when the bachelor bee-keeper has plenty of leisure the making of it becomes a pleasure.

RAMBLER'S CELLULOID BEE-VEIL.

When I first donned the thing I thought I should not like it; but now after a few weeks' use I am more and more in love with it. There is but little reflection from the bright surface into the eyes, and the reflection bothers only when the sun is not shining. The mosquito-netting, besides being cheap, is of large mesh, and allows a free circulation of air. The color, also, adds to the comfort.

And the hat—I almost forgot that. It looks like an ordinary wash-basin bottom up. I do not use that habitually, but put it on just for effect. It belongs to Sam Wong Sing, a heathen Chinee. He was sent up as helper in one of the tunnels; and, though the Chinamen here use American hats, Sam brought this one along so that it would protect his head from the dripping water in the tunnel.

I hope the readers of GLEANINGS will notice how I have reformed during the preparation of the two last Rambles. I was in hopes to continue the reformation; but so far as my new inventions are concerned, my stock of them is about exhausted — the pond has run dry. Then Mr. Brodbeck has secured my services to go with him to the mountains on a prospecting-trip. It is a "gold-mine or bust," and, having him for company, I greatly fear that I shall have a relapse from my excellent resolutions. Any way, I will let you know all about the gold-mine.

ADVANCE, AUSTRALIA; AFTER APIS DORSATA. SEE PAGE 725.

THE UNCERTAINTIES OF BEE-KEEPING.

Some Records of Past Honey Crops.

BY H. LATHROP.

There is no branch of agriculture so apt to mislead a beginner, and inflate him with the belief that a fortune for him is just ahead, as that of bee-keeping. He figures from results that he has secured on a small scale, and argues that all he has to do in order to bring about the same results on a larger scale is to increase the business. So argues the novice; but sooner or later he strikes an adverse season, and, lo! his bubble is burst, and he begins to realize some of the uncertainties in this line of business. Then he may go to the other extreme of discouragement, and dispose of his few remaining colonies for about what the bare hives cost him in the first place. He should not do so, however, but take care of his hives and combs; do the best he can, and wait for better conditions. Other branches are subject to failures. The farmer is never certain of a crop when he puts in the seed, but on the whole his occupation is as certain to bring results as any other, and more so than many. So it is with bee-keeping. We can form a correct estimate of the relative value of the industry, as compared with others, only by taking a number of years together. For my locality I have records of each season dating back to 1885, during which season we had a very small crop of honey; still, it could not be called a failure.

The season of 1886 was an ideal one. White clover was abundant, and lasted a long time; basswood could not be better than it was then. I remember how one could literally see and taste the clear shining nectar in the blossoms. The season of 1887 was a failure on account of extreme drouth. The season of 1888 was phenomenal in honey-production. Bees came out rather weak in spring, but built up on white clover, getting in shape for basswood, which lasted three full weeks. When basswood closed, the bees began working on the large wild sunflowers and other autumn flowers, which continued to yield honey until frost came. During that season I had colonies that produced over 200 pounds of comb honey in one-pound boxes; others did nearly as well. One hundred colonies of bees in good condition to begin the season, and properly handled, ought to have made the owner $2000 clear, as honey brought a better price then than it does now. I received 18 cts. per pound in job lots for part of my comb honey.

For the years 1889, '90, '91, and '92, the honey crops were light to fair, but there were no total failures. The year 1893 was a great white-clover year, and gave us a splendid crop of honey. In 1894 there was no white clover, but basswood was a full crop, and lasted as long as it was ever known to in this region. The bees worked on it 25 days. Just after the close of the basswood flow, Ernest Root visited us and found the bees storing quite rapidly a very light amber honey, the source of which I never fully learned. The year 1895 scored another total failure, bees getting just enough honey to winter on. In 1896 we had a fair crop, mostly from basswood. In 1897 we had another great white-clover year. The pastures in this county were covered as with a white sheet. In 1898 there was no honey at all from clover, but basswood gave a fairly good yield.

Thus we see that, during the years 1885 to 1898 inclusive, or fourteen years, we have recorded five full crops, seven of which were light to fair, and two total failures. Taking it for granted, for convenience' sake, that the present season of 1899 will score another failure (which I do not think will be the case), we have, as a result, one total failure for every five years; five heavy crops out of fifteen, or one in three years, and seven medium crops in fifteen years. This gives us a basis on which to estimate the probable results in the future, and is very valuable to the one who expects to make bee-keeping his principal means of support. Some localities can show a better record than this, but there are a greater number that can not show as good.

One can see from this record how important it is to have a location with a diversity of honey-producing plants. In my location the fact that the field produces both white clover and basswood prevented me from having several more failures of crop during the time recorded.

Some may ask what I consider a full crop on my field. I will state it in round numbers easily remembered: 100 lbs. of comb honey per colony, spring count, for a full crop; 50 lbs. half crop, and so on. From this it would not be difficult to figure out just about what a good bee-keeper *could* have done in those past 15 years.

Location is a great factor; but management, I believe, is the most important of all. How many Doolittles have we among bee-keepers? Very few. I know that I am not one, for, as I once said to a friend, "I get well paid for neglecting my bees." That means that I have other business that prevents me from taking the nice care of the bees that they deserve. But there are some keeping bees in Wisconsin who are so ignorant and negligent that they will tell you they expect their bees to do well when the basswood comes in bloom, whereas basswood has come and gone, and the poor bees had no surplus-arrangement provided in which to store the honey, so they just plugged their brood-combs what they could, and then loafed, or in some cases built a piece of comb on the outside of the hive.

Browntown, Wis., July 15.

[If any thing, the locality in which Mr. Lathrop lives is better than the average one; and if that is the case, then the general status of bee-keeping over the United States is not as good as in the immediate vicinity of Mr. Lathrop. We want the plain, unvarnished truth; and it is only fair to the veterans as well as to the beginner that such truth be known. Many novices become excited over the proceeds procured by a neighbor *in one season*, and then they go in and "divide profits" by putting more bees into a locality that is already well stocked, and just barely capable of supporting *one* honey-producer.—Ed.]

"FIVE-BANDER" EXPERIENCE.

Narrow Frame-spacing; Shade for Hives.

BY A. NORTON.

Friend Root:—I do not wish to discuss a matter that I have written about in former years, when you intimated that I was partly theoretical, but to confine myself to matters of fact. I wish to say that I have continued to test, since my articles on the subject in 1895, the five-banded Italians side by side with the common Italians of three bands. I have had the golden bees of several breeders, and have obtained the three-banders also from various sources. I have not failed to get the stock that promised best. I have purchased queens from breeders of three-band stock who have bred especially for industry, etc., and who have claimed to have a superior race of red-clover three-band Italians. The result of my comparisons for now five seasons is as follows: Just as good "red-clover" Italians are bred by one eastern dealer whose queens are golden Italians as come from "red-clover" strains of three-banders. I do not live where I can test the working on red clover. I refer to their respective merits where red clover does not grow. But I have no doubt that the clover-working carries out the same equality in red-clover countries. All the strains of five-band bees that I have tried are as hardy as are any three-banders. They are as active and industrious, and hence as good honey-gatherers.

I had this season my best honey-record from five-banders, with three-banders and a Carniolan cross in the same yard. The bees vary somewhat in temper, but no more so than do the regular Italians. I have found some cross ones, but equally cross three-banders of pure stock, so that I can rely upon the five-band temper with equal certainty as upon that of the three-band Italians. Some of the gentlest bees I have ever seen were five-banders. The five-band (or golden) queens are, "in this locality," just as long-lived as are any queens I have ever had, preserving their usefulness for as long a period. Therefore, with no theories to advance now, though I still hold them, I find that my practice and experience commend the golden Italians, and warrant me in continuing to keep them till they fail to keep up their record.

Regarding what you said last season about 1¼-inch spacing for brood frames, and consequent freedom from drone comb, I was impressed therewith, and resolved to try it. This year I made some closed-end frames with end-bars 1¼ inches wide. I placed good reasonable starters of either worker comb or worker foundation therein, and gave them to a colony that was not strong enough to want to build drone come at the time. To make the experiment a fair one, the conditions should not be made such as to insure worker combs, even with wider frames; so I did not keep the colony reduced to few frames at a time, as practiced by Mr. Doolittle when getting worker comb built; but I gave them all at one time to the colony, and then left matters to take their own course. The frames were clamped tightly together with thumbscrews, so there was no possibility of their being more than 1¼ inches from center to center. The bees were half-blood Carniolan and golden Italian. From the worker cell starters in part of the frames they built about half or more than half of drone-cells. From one such starter they built a solid sheet of drone comb, filling the frame. From about half the starters they built nice worker comb, but in two such combs I found large quantities of drone brood in worker-cells, though the queen was a vigorous one, as shown by her record before, and also since upon being shaken with the bees into a hive with all worker comb. Hence I conclude that 1¼-inch spacing is not to be depended on to insure all worker comb.

Regarding what you, Dr. Miller, and others say about shade as being beneficial for bees, it has been my experience, the result of extended observation in various parts among the coast valleys of California, that bees in the shade are invariably as cross as can be endured, when the same bees in the warm sunshine will be tractable. Moreover, the honey will be sealed over in a thinner or less ripened state in the shade. The reason of both conditions is not hard to seek. Shade, then, is eminently a "question of locality."

Monterey, Cal.

[I do not remember, friend N., where I ever intimated that you were "partly theoretical," and where I ever asked you to "confine yourself to matters of fact;" but I know that I have held that the only merit of *many* of the so-called five-banded stock was their color; and I believe that I have stated that some of them are cross, and seem to have been bred originally from Cyprian blood; that others of our yellow stock have been short-lived, and have been the first to succumb to winter; but I do not think I have anywhere claimed that *all* five-banded stock had such characteristics; in fact, I have plainly stated that the queens from two of the breeders were not only beautiful to look upon, but were gentle, and good workers. It is one thing, however, to rear yellow stock having color only, and another thing to combine color with business; but it has been done, nevertheless, and you, doubtless, have secured some of this stock.

But I have contended that the rage for color on the part of many careless queen-breeders has resulted in getting color and nothing else. I know this to be a fact, because we have bought such queens, and the result has been that we secured some very cross bees, and colonies that died off in winter.

In all these things there are extremes both ways, and I have intended to hold middle ground.

With regard to 1¼-inch spacing, if I have ever said that such a distance would result in "freedom from drone comb," I do not remember it; but I have said, and would refer you to the A B C of Bee Culture, that close spacing has a *tendency* to produce more of worker and less of drone. You do not say what were the other conditions under which that drone comb was built. There are some, you know, when nothing but worker will be built, even if only starters are given the bees. There are other conditions when, no matter what the spacing, a large percentage of store comb will be made.

I have tried to avoid extremes in statement; and if you can find where I have not done so in the above cases, I shall be obliged if you will point out the places. But regarding the value of close spacing, I would refer you to the works of Cheshire, Thos. Wm. Cowan, and to articles of Julius Hoffman, and scores of others who have used the wide spacing, and have finally adopted the close.—Ed.]

ANSWERS TO SEASONABLE QUESTIONS BY G. M. DOOLITTLE.

BEE-LIFE — HOW LONG IS IT ORDINARILY?

Question.—One of my neighbors claims that the worker bee lives to be a year old, and sometimes lives to see eighteen months. Another claims that no bee in the hive ever attains to such an age, six months being the usual length of the worker bee's life, while the queen may live a year. In a paper I was reading lately, I see that thirty days is the life of a worker bee in the summer season. What are beginners to think when there is such a variety of opinions? Please tell us in Gleanings just how long the queen, drones, and workers live, under ordinary conditions, and thus confer a favor on the many beginners who read that excellent paper.

Answer.—Surely no one need be ignorant in regard to the length of life of the worker bee when one experiment would tell him the truth in the matter, and convince him that the average life of the worker bee is about 45 days during the summer season, or a half more than the time quoted from the paper, and 16½ months less than that given by the first neighbor. Take a colony of black or German bees, for instance, and about the 10th of June take their queen away and introduce an Italian queen, keeping record of the date on which the change was made. In 21 days the last black bee will have emerged from its cell; and if the Italian queen went to laying immediately, the first yellow bee will have made its appearance, the time of the appearance of the first Italian bee being jotted down also.

At the end of 45 days from the time the last black bee had hatched, no black bees will be found in that colony. At 40 days plenty of black bees can be seen, they becoming fewer and fewer each day, so that on the 44th day there will be very few indeed left. This is for the summer months, and does not apply at all to those of the winter. The life of the bee depends upon the work it does. Thus when it labors the most its life is the shortest. Hence it comes about that, through the inactivity induced by cold weather, the bee can live from seven to eight months. This is proved by changing the queen as before, only it is done this time about the middle of September. Soon after the first of October the last black bee will have emerged from its cell; but I have often found a few black bees on June 20 of the following year, in a colony so treated. Also when spring opens, or about the first of April, there will be very few yellow bees in this hive, which shows that but little brood is reared from October until April, as well as telling us that more bees die in two months in the spring than during six months of winter; hence all possible precautions should be taken to preserve the life of those old bees during the spring, so that they do not die off too suddenly, or have what is known as spring dwindling before the brood has emerged from the cells in sufficient numbers to keep the colony in a prosperous condition.

The life of the drone is regulated very largely by the workers, for drones are usually killed or driven off by the workers long before they would die a natural death from old age. Any sudden cessation in the flow of honey from the fields is often considered sufficient reason for their being driven off, or out of the hive to die, or the killing of them by stinging, if they are persistent in staying in the hive, so it is hard to tell just what age they might attain to were they allowed to live to the good old age allotted to them when not persecuted by the workers. Most apiarists think that the drones would live to about the same length of life attained by the workers; but from a close observation with those which I have tried to preserve in queenless colonies for the late fertilization of queens during the fall months, I am of the opinion that they are of a little shorter life. It is a rare thing that I have found any out of a certain "batch" to be alive after 40 days from the time the last one emerged from the cell. Unless some precautions are taken it is a rare thing that any drones are allowed to stay in the hive after the honey harvest is over in the fall; still, we have a few reports where drones have been wintered over, and I have had them flying in mid-winter when the bees were out for a cleansing flight.

The average life of the queen is about three years, although some have been known to live more than five years. A man at the convention of the United States Bee-keepers' Association, recently held at Philadelphia, told me that a queen he purchased of me lived to be five years and five months old; and I had one, purchased of Mr. A. I. Root some twenty years ago, live to be five years and four months old, she doing good work up to the last month she lived. Queens live also in proportion to the work they do, or according to the number of eggs which they lay, as egg-laying is the only work queens perform. Under our present system of management, most bee-keepers coax the queen to lay as many eggs in one year as she usually would were she in an old tree or box hive in two years; hence most apiarists think that all queens should be replaced after the second year with those which have just commenced to lay. There is no question but that a queen reared during July, August, or September of any year will do as good work the following summer as she ever will; but it is a question whether it will be a paying undertaking to remove the queens in the apiary at the end of their second summer's work, and then replace them with young queens. I have experimented along this line to a considerable extent, and the result is that I do not now make it a practice to supersede my queens every two years, for I find that the bees are quick to understand when their mother is failing, and will supersede their own queen when she gets to be too old to be of service to them; so I trust the matter to the bees, believing that they know what is best for them in this respect better than I do.

CALIFORNIA ECHOES

BY J. H. MARTIN.

Monterey Co. has produced a little surplus; San Diego Co. also secured some, but all told there is not enough for the home demand.

I learn that Prof. Cook has gone east for making a few calls. There is no use for us to ask you to treat him well for we know you will.

The exports of honey from the San Francisco markets by sea for the past week have been only eight cases, which at this time of the year is about as light a shipment as was ever made since California became a honey-producing State.

This, from an interview with Secretary of Agriculture Wilson, who recently visited Southern California, will be of interest to all bee-keepers in arid America:

> Explorers for our department have found in Russia a species of vetch that is to be tried on this coast. Then we have a dry-land alfalfa that we want the farmers to try. This flourishes in Turkestan without irrigation.

Now, we are wondering if that alfalfa will become a good honey-plant. If there is any seed of that plant to be had we shall try it.

J. J. Rapp secured several tons in Ventura Co., while the rest of the bee-keepers got but little if any. His apiary is located well up in the Matilija Canyon, where the clouds could bump against the mountains and cause them to shake out some of their moisture. A. I. Root will remember the Matilija with its hot springs and bathing facilities.

I clip the following from a late number of the Los Angeles *Times*:

> At the graduating exercises of the Pasadena High School, the speaker of the evening, Rev. C. G. Baldwin, ex-president of Pomona College, in touching upon the subject of heredity, with a view of illustrating what he claims is the small influence of heredity and the overwhelming effect of environment and education, referred to the worker-bee and the queen-bee. The latter is worth just 40,000 times as much as the former; but they come from the same egg; and the food and room for twenty days, he says, make the difference, deciding whether the bee shall be a worker or a queen valued at 40,000 points more. The speaker expressed his adherence to the doctrine set forth in one of the latest works of a great German psychologist, to the effect that there is no inheritance of intellectual or moral quality where the inheritance is wholy corporeal. Many will dispute this theory.

Did you notice in the *Review* for July what Dr. Mason says about a certain portrait of Doolittle that appeared in a certain bee-paper a few months ago?

Well, like Dr. Mason, I conjectured a long time over that picture when it appeared, and concluded if that truly represented Doolittle's head he had degenerated wonderfully during the past few years.

Then I conjectured that the editor of said paper had, through mistake, printed a head of one of those terrible Chicago anarchists, and labeled it Doolittle, or perhaps out of spite because Doolittle gets off on to the socialism racket occasionally.

Then I had another conjecture, and I believe it is correct. Bro. Doolittle is a good kind soul, and he allowed an amateur photographer to take his picture. Why, Bro. Doolittle, the average amateur photographer will reduce the god Apollo into a chimpanzee. I know just how it is, for I am more or less an amateur photographer.

HEADS OF GRAIN FROM DIFFERENT FIELDS

NO-DRIP SHIPPING-CASES; HOFFMAN FRAME WITH V EDGES SUPERIOR TO SQUARE EDGES, AND WHY.

Mr. Root:—Here is my vote on the no-drip cleat and the Hoffman frame with square edges. The cleats in the bottom of the shipping-case should be $\frac{3}{16}$ inch high. A bee-keeper who sees the need of cleats ⅜ high must put out a poor class of honey. We are supposed to sell our cull honey around home.

Now a word about the width. The middle cleats should be ¾ inch wide; those at the ends of the case, ½ inch. I can imagine how some persons would have much trouble getting narrow cleats in the proper place, in the middle of the case; and then, even if narrow cleats are in the right place, the sections very easily slide off when handled by the storekeeper and retail customers. It is desirable to have the sections remain upon the cleats until the contents of the case are all sold. I have perfected a simple form for putting in the paper and cleats, which saves much time and avoids the necessity of exercising patience.

I have tested the V edge Hoffman frame side by side with the square edge. For two seasons I thought the square edge was the better one; but after looking over my bees this spring on a warm day I noticed some things that set me to thinking; and no doubt you have thought the same things. Without taking the space to explain just how it comes about, I will say that propolis accumulates between the square edges. Propolis also accumulates between the V and square edges. After two seasons your frames are occupying more room than they really ought to. The day is warm; you are very busy; and in attempting to get ten frames into a ten-frame hive you find that the hive is too small to admit them. What are you going to do? If your frames have the square edge you will have to stop and scrape their edges to reduce the spacing. Scraping propolis on a hot day is a mussy job. Well, if your frames are the regular V edge, just squeeze them all up together with your chisel or hive-tool. Give a slow steady push and the V edges will gradually cut their way through and then you are ready for the next hive. If I were going to order some Hoffman frames to-day I think I would take the regular stock—the V edge.

Eden, N. Y., April 24. E. W. Brown.

[A very few of our customers have complained because we insisted on putting the V edge on all our Hoffman frames. Mr. Hoffman, the inventor of that particular frame, uses the V edge, and for very good reasons; but, like some of the rest of our friends, for the first year we began using our Hoffman frames without the V edge; but one season's use in the apiary convinced me that it was a mistake. It is somewhat refreshing in these latter days to know that some of those who advocated and even insisted on having their Hoffmans made with square edges are now coming to the conclusion that the V edge is about right after all. Mr. Brown is not the only one who has gone through that experience. Indeed, I have been through it myself. Dr. Miller was once very doubtful about the value of the feature; but he is now pretty well satisfied that if he used the Hoffman frame he would use it rather than go without.—Ed.]

PRETTIEST OF COMB HONEY FROM PLAIN SECTIONS AND FENCES.

I tried quite a number of the Ideal plain supers this season, and must say, give me fence separators and plain sections. I have the prettiest comb honey most of us in this part have ever seen. I have also been trying Mr. Doolittle's plan for queen-rearing, and like it. I find that, to take a colony or even a strong nucleus in prime condition, made queenless, and furnish cell-cups properly fixed, will build excellent cells. I believe this is a combination of Mr. Doolittle's and Mr. Alley's plans. J. W. BEAUCHAMP.

Hatfield, Mo., July 9.

LOOSESTRIFE AS A HONEY-PLANT.

Find inclosed a honey-plant which please identify. It is just now closing the blossoming season of about two months' duration. Bees work on it freely all day, and in great numbers. The specimen I send you was cut in two twice, but shows the whole plant. It grows in bunches, or four or five together, and is usually found on low or marshy land, but sometimes on upland. M. F. TATMUN.

Rossville, Kan., July 25.

[Answer by Prof. Selby.]

The plant is a species of loosestrife—*Lythrum alatum*, Pursh. This is of interest to botanists, especially because of its dichogamous forms. Some have short stamens and long style, others long stamens and short style. This is generally recognized as a device for securing cross-fertilization, and, in a secondary sense, doubtless serves as a form of inviting the work of insects. I am unable to say any thing as to its character as a honey-plant. A. D. SELBY,

Wooster, O. *Botanist.*

ENTRANCE THROUGH THE SUPER.

In Stray Straws I see where a French bee-keeper closes the regular entrance and gives the bees entrance through the super. Mr. Root, that is all right. I have been doing that more or less for the past ten years with good success. It must be done at the right time, and the entrance closed at the right time. At no time have I left the entrance of the super open over 12 days. D. C. BUCK.

Lawton, Mich., July 13.

THE STINGING BUG.

I often received the above bug, the one sent as referred to above, when in Michigan, from almost every Eastern State. It was common in Michigan. It hides in the yellow fall flowers, grasps the bees by means of its strong nipper-like forward legs, and sucks them bloodless by use of its strong beak. It is a considerable enemy of the bee, but also does much good in killing noxious insects. I doubt if it kills enough bees to work any noticeable injury to the bee-keeper. The scientific name is *Phymata erosa*, and it is fully described, with excellent illustrations, in my "Bee-keepers' Guide," p. 419.

Claremont, Cal., Aug. 22. A. J. COOK.

RUNNING BEES BY BOOKS.

Bee-keepers tell me that I run my bees too much by the books; but my crop is over 60 lbs. per colony, spring count, and theirs are from 25 down to nothing. L. L. TRAVIS.

West Nicholson, Pa., Sept. 4.

[The proof of the pudding is in the eating. —ED.]

BEGINNERS' QUESTION BOX

BY E. R. ROOT.

G. B., N. Y.—Bees are not likely to swarm from the hive without the queen, and I think you may assume that the queen is with the bees. If you can give them a frame of unsealed larvæ or brood from one of the mother colonies you can soon ascertain whether there is a queen in the hive. If some cells are built she must be present. If you can get any thing else we would not advise you to use candy for winter feed. It is early enough now so that you can feed sugar syrup. For particulars in regard to feeding, see "Feeding," in the A B C of Bee Culture.

O. L. H., N. Y.—The sample of brood you send is a little suspicious; and although it does not seem to have as much ropiness as it ought to have for foul brood, and also seems to lack the peculiar odor, yet it may be the real disease just the same. If you have only one colony I would take no chances. It often happens that we have brood die and exhibit exactly the same symptoms as shown in the sample sent, and that is what we call "pickled brood;" but it is so near like the other that it is almost impossible to distinguish it. The real difference is that one spreads throughout the apiary, and is contagious, and the other is not contagious; but where there is any doubt, as there certainly is in this case, I would treat it just the same as if it were foul brood.

J. R. S., Ohio.—1. Yes, a colony will winter safely in almost any locality in the shallow Danz. frames, single story. Indeed, colonies winter well in frames much shallower, like the Heddon, for instance. 2. We usually figure on having at least two-thirds of the frames in the brood-nest filled or partly filled with honey. For outdoor wintering, bees require more stores than those for indoors. For the former we figure on about 20 or 25 pounds; for the latter, 10 or 15. 3. We would not advise you to use a candy cake or candy of any sort for wintering, when combs of sugar syrup or honey of good quality can be had instead. Candy is used only in the winter, when such combs can not be obtained. If there is any doubt of there being a sufficient number of these combs, one colony should be fed liberally; and as soon as the combs are sealed they should be set aside to be used later when or wherever they may be required.

S. J. F., Iowa.—It is a rather difficult matter to judge an exhibit by points. Various judges use various scales; but in general you can scale something after this fashion: Call 100 perfection. Out of this allow, in case of comb honey, 25 per cent for good filling; 25 per cent for color; 25 per cent for the style of section; 25 per cent for the shipping-case, carton, or package. In the case of extracted honey a similar scale may be followed, allowing, say, 25 per cent for color, 25 per cent for style of package, 25 per cent for general display, and 25 per cent for label or other adorn-ments. In the case of the best and largest display, then the scales would have to be rearranged — 50 per cent, we will say, for the general quality of the individual packages of the exhibit, and 50 per cent for size, as quality and size are the only factors that figure in such a case. Each individual judge may adopt different scales. The scales above named are not necessarily the ones followed by the best of judges, but are merely suggestive. Where possible, the name of each exhibitor should be left off from his own exhibit, the exhibit being designated by number. Of course, if the judge is unacquainted with any of the exhibitors it would make no difference whether the name was on the exhibits or not; but where a judge knows the exhibitors it is a difficult matter to award the premiums according to actual merit. I heard one judge say once that Mr. A had excelled in every thing in a certain exhibit. "But," said he, "we will give him two or three first premiums, and then divide the other firsts up among the other fellows so they will not feel disappointed." The matter of sympathy and favoritism should have nothing to do in awarding premiums; for it is understood that merit is the only factor to be considered.

A. E. H., Mich.—It is not an uncommon thing for queens to be missing in colonies during the fall of the year, especially if they are a year or more old. Some queens play out within a year: others within two years. They die; and as eggs are not apt to be in the hive in the fall, the bees can not replace her.

J. C. B., Pa.—For particulars regarding the making of sugar syrup that will not granulate, see page 28 of our catalog, under directions, "How to Make," etc. The chief cause of granulation is feeding too late, or feeding a syrup one part water to two parts sugar. It should be fed early, and made in proportion of one part sugar to one of water.

W. G. A., La.—The brood you speak of is probably not foul brood. It is possible that it was poisoned, or that it had died as a result of poisoning during the spraying season. A good many farmers yet spray fruit-bloom when it is in the blossom. The result is, the bees carry off poisoned honey or pollen, and if this is used in the food given to the young larvæ it causes them to die and look very much like foul brood. See GLEANINGS for Aug. 1. If it is not ropy, and does not have the characteristic odor, then it is certainly not foul brood.

J. T. B., Pa.—You can winter bees under an open shed, but the hives should be either double-walled or packed. With the shed you describe in your letter you could winter bees very well, but you had better make it large enough to take more than three hives. Distance *between* each hive may be about 2 in., but packing material should be 4 or 5 in. all around the hives. All things considered, you had better put the money that you would invest in a shed, in double-walled hives, or place the bees in a dry cellar.

F. W. H., Iowa.—We know of no way you can tell which hive the queen came from after being found in one of the 15 supers taken off, except to go over the hives and see which one is really queenless. This will consume a good deal of time, and there will be no surety about it until you can determine whether or not cells were built. Yes, in your locality you can raise queens as late as Oct. 1st, and get them fertilized; but the chances of their meeting drones would be much better in July or August than in the fall. It is much more difficult to get queens fertilized in the fall than in summer. You can take partly filled sections and place them in the upper story of a colony; and the bees below, if you give them time enough, will empty them out and store in the brood-combs.

M. S. Y., Iowa.—You can put an observatory hive in a grocer's show-window by closing the entrance; but about once in ten days it would be better to change the bees.

EDITORIAL BY E. R. ROOT

How do you like the series of illustrations in this number? We have "lots" more of them to follow.

PLAIN SECTIONS CONDEMNED BECAUSE TOO WELL FILLED.

A WRITER in the *American Bee-keeper* prefers old-style sections with insets, because the new style with no insets are too well filled; that is to say, a box having honey filled clear out to the wood is not as desirable as one where there is a line of cells not filled with honey next to the wood. There may be a difference of opinion on this point. As I have stated in an answer to one of Dr. Miller's Straws, plain sections can have either style of filling. The only difference would be the amount of crowding for room that is used.

BEES WITH DRONE HEADS.

MR. E. S. SNYDER, of Santa Fe, Ind., sends us samples of bees, extra good workers, from queens whose stocks have produced 100 lbs. of comb honey each. The peculiarity of these bees is that they have heads like those of drones; but their tongues are quite long—apparently longer than the tongues of ordinary bees. One would almost think, to look at their heads, that they were drones; but the fact that they could produce 100 lbs. of honey when other colonies are not making 25 lbs., seems to indicate that they are good workers. Taking it all in all, they are quite a novelty. We have sent for two of the queens.

PETRIFIED HONEY-COMB.

MR. C. DISEREUS, of Cliffdale, Ill., sends us a sample of petrified honey-comb. It looks as if it might have been a chunk of wax that had been crushed together, making a piece about as large as one could hold comfortably in the palm of his hand. One side of the comb is squshed down so the base of it, or what might be called the natural foundation, stands out very distinctly. The other side the comb, though mashed, shows the cells very distinctly. The stone itself has the color of ordinary sealing-wax; and the very remarkable thing is, that, even after petrifaction, the color of the original wax should have been so nearly preserved. There are exactly five cells to the inch; and there can be no question but that the sample before us is the comb of *Apis mellifica*.

There has been a desire in the past to stiffen combs; and perhaps some inventive genius will now put a few combs in a petrifying-spring. After they have been turned to stone he can extract from them to his heart's content. There might be just a *little* trouble encountered with the uncapping-knife, and just a little trouble from the great inertia in the extractor even when empty.

A PECULIAR KIND OF BEE DISEASE OR MALADY.

ONE of our subscribers, Mr. L. B. Smith, of Lometa, Texas, has a peculiar disease or malady that is making pretty bad work in his apiary. Whatever it is, it affects both the brood and mature bees. The former looks very much like foul brood, and the bees themselves die off by the thousands. One would naturally suppose that the real cause of this trouble was poison — something that the bees gathered; but Mr. Smith is very confident that this is not the cause. After some little correspondence we learn that the malady begins about the time watermelons appear in his vicinity, especially after they begin to rot, and continues with its greatest virulence about the time the melons are being grown; for he says there are many rotting melons, and that, as a general rule, as soon as these are gone the disease begins to disappear. But now, notwithstanding the melon season has been long past, the trouble is still going on. He has lost something like 35 colonies out of 80, so far, and still the bees are "dying by the thousands." Some colonies apparently recover before a relapse, and finally die off.

I should be glad to know if any of our other subscribers have noticed the same trouble following or during the time of growing fruit.

QUEENS FOR BUSINESS; THAT $100 OFFER.

A FEW days ago a correspondent wrote, saying, "Your offer of $100 is too high; and by the terms of the same it would be impracticable for any one to secure the prize, for the reason that it will take the breeder who produced her at least a year to determine whether she possesses all the desirable points named; and it will take a year or more for the purchaser to prove her qualities. By that time her usefulness will nigh be gone." There is a good deal in this. In talking with W. Z. Hutchinson, of the *Review*, recently, he gave expression to similar sentiments. So, taking it all in all, the maximum price we can put on queens would be something like $25. We have already given $10 apiece for a couple of queens whose bees did record-breaking work in comb honey the past season. From one of these we hope to be able to find one that will reach the $100 mark; that is to say, a queen with which *we* would not part for less than $100.

But this talk about $100 queens has been productive of a great amount of good. Honey-producers all over the country, as well as queen-breeders, judging from the scores of letters that have been received, have been and are selecting for the coming season breeders whose bees have done splendid work in sections. I doubt whether any thing else would have stimulated such a healthful state of affairs as our offer of $100; and I will say now that, if the conditions are fully met, our $100 is still ready to be paid over. We are on track of two more queens whose bees last season produced nearly 200 pounds of comb honey when the other bees in the same yard were doing practically nothing, showing that the season was generally a poor one. What might be expected from those same bees in a good season may be readily guessed; for it is bees that will get honey during a poor season that we want.

I hope the race for color has had its day; and while there have been several specimens of bees that have been good workers, as well as beautiful, the majority of those *we* have tested have had some bad traits, either in temper, swarming propensity, or a lack of hardiness for wintering. Let the matter of color be only a secondary consideration. Put first, ability to get honey; second, wintering qualities; third, disinclination to swarm; temper next, and color last of all. But, other things being equal, I should very much prefer gentle bees if at the same time they can have the other three desirable qualities. Color really amounts to nothing.

Of color or markings it may be said that, of whatever blood the queen may be, she must be pure, whether Carniolan, black, or Italian. A hybrid queen with an ancestry of hybrids back ten years *might* be able to reproduce her kind without sporting toward either the blacks or Italians. Dr. Miller has such a queen. Her bees outstripped every thing else in the apiary last season, and he is going to use her for a breeder.

Hybrids are apt to be more or less cross. It has been observed, I believe, that the cross or "snappy" kind are the ones that produce results in honey. Did you ever notice that it is often the "snappy" kind of people who can get out a big day's work, even though they are not, perhaps, the most popular among their fellows?

"ADVANCE, AUSTRALIA;" PICTURES, WHAT DO THEY MEAN TO US?

A FEW days ago a bulletin from Australia came to hand, and in it was a picture that brought forward to my own mind familiar incidents. It was a half-tone from a wash-drawing, and not from a photo. But notwithstanding the picture was made with pen and brush, there was something about it that was decidedly natural; and I therefore sent the bulletin to our engravers, and asked them to reproduce the picture on a little smaller scale. Elsewhere in this issue I present to you the result, reduced to a size so as to go into our new honey-leaflet, for there will be in it other companion pictures representing familiar scenes among the bees.

Let us now turn over to the picture. The humor of it is somewhat quaint as well as familiar. A lean, lank rustic is the "star" of the scene. Those hob-nails in the shoes; the toeing-in of the left foot; the wrinkles in the pants; the patch in the upper elevation of the same; the strings around the ankles; the ax under the arm; the Crane smoker emitting volumes of smoke; the Manum swarmer, the cover of which goes flippity-flop back and forth at every long stride of the runner; the bee-veil flowing backward over the shoulders, fanned by the artificial breeze; the old vest, ripped partly up the back, and unbuttoned in front; the belt that encircles the long lanky waist; the swarm in the distance hanging in the air, and the men urging greater speed—all these, and more, suggest scenes that are more or less familiar.

The man who, with brush and pen, made this specimen of awkward dexterity is, to my way of thinking, a real artist—far better than those who give us the so-called specimens of "art."

For aught I know, the long stepper may be in quest of *Apis dorsata*, for I can imagine nothing else that would cause any bee-keeper to take quite such long strides as our friend in Australia is taking. That he "will get there," there is no question, unless—unless he catches one of those hob-nail stogies in the underbrush that seems to be in his way.

Speaking about the honey-leaflet reminds me that I have a picture of a beautiful girl holding a swarm of bees, taken right from nature itself, with a camera. This and several others will be companion pieces to the runaway Australian, the purpose of which will be to illustrate bee-keeping in its various phases. Now that the A B C of Bee Culture is off my hands I shall have more time to work this up. The new leaflet will, as I have said, be printed in the finest style of the art, be mostly pictures, and will be entitled "Honey, from the Hive to the Market."

PHILADELPHIA CONVENTION NOTES.

Mr. W. A. **Selser**, the expert honey-man who has probably traveled more miles in quest of good honey than perhaps any other bee-keeper living, almost startled the convention in the course of some of the discussions by stating that, in his opinion, the sweet-clover plant was a "curse to the bee-keeper." A perfect buzz of surprise and protest immediately made itself manifest. Some even wanted Mr. Selser to recant; and then Dr. Mason, after his usual style, fired shot after shot at him; but still Mr. Selser stood invincible. He had sold large quantities of honey, and whenever there was the least amount of sweet clover in it, it spoiled it for his market. Dr. Mason exhibited a sample of what *he* called genuine sweet-clover honey. Quite a number of us sampled it, and considered it first-class. But still Mr. Selser insisted that he wanted none of that in his. He could not sell honey that had a taint of sweet clover in it. He wanted pure clover and nothing else. In fact, I know personally that he paid 11 cts. for such an article when he could have bought clover with a little basswood in it for two or three cents less. There is no denying the fact that Mr. Selser has built up a demand for a gilt-edged article of comb honey, and especially for extracted honey in bottles.

HONEY FOR BREAKFAST.

At one of the sessions Mr. Francis Danzenbaker, of Washington, D. C., said it was getting to be quite the fashion in official families to have honey for breakfast As Washington sets the pace for the rest of the United States, hope was expressed that the custom might grow over the country generally; and Mr. Danzenbaker was kindly advised to encourage the custom all he could.

ADULTERATION, AND A NATIONAL PURE-FOOD LAW.

Much was accomplished at this meeting in the way of setting on foot certain plans calculated to further the cause of a national pure-food law. A most valuable paper was read by E. T. Abbott, of St. Joseph, Mo., setting forth the result of his visit before the last pure-food commission; for it will be remembered that he and two or three others were appointed by the United States Bee-keepers' Union to represent bee-keepers at that time. Mr. Abbott placed great emphasis on the point that it was folly to ask for *special* legislation. What we need is a general pure-food law that would cover all forms of adulteration, so that all classes could unite in demanding its enactment. He explained further that a national law, even if passed, could not prevent adulteration within the States, but it could prevent the traffic in adulterated goods from one State to another. In other words, the New York concerns dealing in glucosed honey could not ship the stuff into another State. If there were no State law they could manufacture and sell within the borders of the State just the same. It was, therefore, necessary to see to it that anti-adulteration laws were passed in every State in the Union.

This paper called forth a most substantial indorsement from the members of the convention. A general desire was expressed by every one to have the same published as widely as possible in the great dailies of Philadelphia. A reporter of the *Daily Call*, who was present, and who manifested much interest in the proceedings, was appointed a committee of one to see what could be done in the way of getting this paper of Mr. Abbott's published, in whole or in part, in the dailies.

Mr. Selser, of Philadelphia, showed that a good State law, backed by honest officials, would almost entirely wipe out adulteration within the confines of the States. There was a time when honey was adulterated extensively in Philadelphia and throughout the State. Within the last three or four years there had been scarcely a sample of adulterated honey to be found anywhere in the stores because an anti-adulteration law was passed three or four years ago; and following this there were arrests and convictions, with the result as above stated.

Dr. Mason called attention to the good work that had been done in Ohio by Pure-food Commissioner Blackburn, of Columbus. "We have," he said, "a good pure-food law, and an honest and energetic official to enforce it; and the result is, there is but little if any adulteration in our State."

FEEDING IN THE OPEN AIR.

There was quite a spirited discussion on this subject. Mr. Coggshall happened to mention that, after his combs were extracted, they were hung up in the building for the bees to clean out. Some objected to this, as it would make a regular *furore* in the apiary; that they practiced the plan of putting combs in hives stacked up, leaving a small entrance at the bottom for the bees to carry the honey out slowly. This would not encourage the robbing tendency, yet at the same time it would accomplish the results desired; namely, get the extracting-combs cleaned up ready for use another season. But there were some among them—notably G. M. Doolittle and G. W. Whitcomb—who objected to even this practice; "for," said they, "if the robbing habit is once started among the bees it causes a great deal of annoyance to the apiarist, to say the least."

"A LITTLE STRENGTH."

At one of the evening sessions we listened to an address by G. M. Doolittle. He first read the third chapter of Revelation, and out of it selected as his text, "I have set before thee an open door. Thou hast a little strength." It would be impossible to give even a digest of this, and I would therefore refer our readers to a verbatim report that will probably appear in the *American Bee Journal*. The point emphasized by Mr. Doolittle was that great opportunities were before us—the "open door;" and the "little strength" we have we should develop, and help our brother bee-keepers. He illustrated the talk with various amusing stories.

CAN A HIVE BE RUN FOR BOTH COMB AND EXTRACTED HONEY AT THE SAME TIME?

Mr. O. O. Poppleton did not believe that a comb-honey hive was also equally well adapted for extracting. A combined thing or machine adapted to a variety of uses was not as good for a certain specific purpose as one specially fitted for that purpose and nothing else. He had used the Langstroth, one, two, and three stories; but he now prefers what is generally known as the Long-idea hive, all in one story — hives containing 24 frames. He had used this for 30 years, and was well pleased with it. But he wished to emphasize the fact that it was adapted for *extracted* honey and not for comb. The frames were deep, or what would be called the square kind. He had tried in the mean time the two-story Langstroth, but was very glad to get back to his old Long-idea hive, for the simple reason that he could get more honey with it. If he were running for comb honey he would use the Langstroth hive.

W. L. COGGSHALL ON THE WITNESS-STAND.

Mr. W. L. Coggshall, who was present, was perhaps the most extensive bee-keeper at the convention. As he knew a heap about practical methods, in order to draw him out he was interviewed by the whole convention. When asked how many colonies he had — well, he did not know; but he estimated it was between 1300 and 1400. He was plied with dozens of questions; and while he was on the stand I asked him if his bees were always as cross as they were when I visited him. He laughingly said, in reply, that he "and the boys stirred up the bees on that occasion for Mr. Root's special benefit." When asked what kind of hive he used he said that he preferred the Langstroth, although he had used some others. He did not take very much stock in having hives in "straight and regular rows." It costs too much. He kept bees for the money he could get out of them It was results he was after. Mr. Niver, who was quite familiar with his ways of working, added that Mr. Coggshall studied carefully the shortest methods. Whatever plan would give him the best results in money, no matter whether it was orthodox or not, for the minimum of labor, that was the method he would use.

BEE-KEEPING AS A SPECIALTY.

Editor W. Z. Hutchinson read a paper on the subject of bee-keeping as an exclusive business. He took the ground that the business was a little too uncertain for one to put all his hopes in it; but it could be made to pay, and pay well, and be used as a sole means of livelihood, providing the business could be done upon a sufficiently extensive scale; but one with only 100 or 200 colonies had better have something else to tie to.

In the discussion that followed, there seemed to be a general indorsement of the position taken by Mr. Hutchinson. And there were in the room specialists who were making a good living off their bees with no other source of revenue.

CONVENTION PHOTOGRAPH.

At one of the sessions we adjourned to the front of the convention building, and assembled on the steps while W. Z. H., with his large new camera, took two "shots" at us. I have before me the result; and while W. Z. H. says it is not all he could desire, it might be a great deal worse. He has them for sale at 50 cts. each. Address W. Z. Hutchinson, Flint, Mich.

The street in which the photo was taken was very narrow, and poorly lighted; and it was difficult for any one to determine just how much exposure would be needed.

Your humble servant happened to stand by the side of Doolittle. The contrast is rather striking. Doolittle, large, pleasant-faced, over six feet tall, and weighing over 200 pounds, makes the chap beside him look small, insignificant, and cadaverous; indeed, I had not recovered from my car sickness. Some people and things appear to good advantage by contrast; but *I* do not happen to belong to this class when compared with our Borodino friend.

OUR HOMES,

BY A. I. ROOT.

Your adversary, the devil, as a roaring lion, walketh about, seeking whom he may devour.—I. PETER 5 : 8.

Satan himself is transformed into an angel of light. II. COR. 11 : 14.

Since my Home talk in regard to devils taking possession of people in modern times, I have received many communications in regard to the subject; and a great many facts in regard to murders and suicides that are still going on together have been sent in to me. I need not tell you that almost every daily paper records how some parent murdered all the children; then the husband or wife, as the case may be, finally ended in suicide. Quite a few cases of this kind are recorded where the would-be murderer or suicide did not succeed in putting them *all* to death. Some few have been prevented from carrying out their murderous designs, and have afterward confessed (or claimed) that some spirit they could not exactly understand had got possession of them. Intemperance is usually at the bottom of it all, but not always. There are several other agencies, one of which I wish to speak about especially in this Home talk. And, by the way, let me remark that we are told in the papers that the spirit of Robert G. Ingersoll has come back to the world, and he tells us something about the future state through a spiritual medium. These statements have called forth sufficient attention to cause a little pamphlet to be published, entitled "Evidences of the Continued Existence of Man after the Change Called Death." Notwithstanding the full facts in the matter are subscribed and sworn to by affidavits, I would never for a single instant give a particle of credence to the statements. I do not mean to deny that every thing happened as narrated in the pamphlet; but I *do* deny that any *spirit* from the other or spirit world ever had any thing to do with it. The *talk* is astonishingly like Ingersoll's. In fact, it is exactly as Ingersoll was in this world; and if passing to another world makes no change in a man for *better* or *worse*, what possible *advantage* can there be in existence after death? Permit me to observe that Ingersoll uses profane language as a spirit; in fact, that comes in in one of his first salutations to the people in this world. In reply to questions he makes the following reply:

> Yes, yes! and yet some of them see me in their hell — burning! burning! Brimstone and eternal damnation! How disappointed they will be! No leering devil here! No brimstone in this country. If there is, I haven't seen it nor smelt it nor felt it! They'd have to get a telescope to find a grain of it where we are now.

He does make a little concession, however, in the following words:

> I find that I was wrong in thinking death might be the end, but I was right in saying there was no devil and no hell.

He also refers to the text at the head of this talk, as follows:

> But there's no devil hiding here, or "going up and down seeking whom he may devour." Ha! ha! ha! ha! No, no. Instead of devils waiting to torment me, I found loving hands outstretched to me.

From the above it would seem that Ingersoll blunders as badly in the spirit world as he did while on earth; for the Bible nowhere makes the statement that Satan goes about as a roaring lion, etc., in the *spirit* world. This *present* world is his field of labor, and the *only* place, if I am correct, where he ruins mankind, both soul and body.

Now, friends, I have, since childhood, read with exceeding care every revelation claimed as coming from the spirit world, that gave us any reasonable glimpse of affairs beyond the grave; but I have never yet found any thing a bit more reasonable or sensible than the above extracts. It seems to me we have every possible evidence that every thing that comes from mediums and the whole domain of spiritism has the stamp of *earth* plainly and unmistakably impressed on it. There are curious and perplexing things, I grant you; but nothing that can not be reasonably supposed to emanate from the mind of some *living* being. The bright meteor, coming to this globe from the immense realms of space, brings us no knowledge of any thing new or foreign to this earth; and neither has any so-called communication from the spirit world added one whit to the realm of poetry, science, or a knowledge of the beyond.

Permit me to direct attention right here to an excellent book on this subject—that is, a great part of it is excellent. In some chapters it seems to me the author has become a little "rattled" himself on spooks and spirits. The book was written particularly to show that all the phenomena of spiritism, hypnotism, clairvoyance, etc., can be rationally explained without the help of spirits from another world in any shape or manner. The title of the book is, "The Law of Psychic Phenomena," price $1.50 (A. C. McClurg & Co., Chicago, Ill.).

This book starts out by assuming that every person has two separate intelligences. You may, perhaps, remember in some previous writings of my own I have called attention to this matter—that there is a sort of second or involuntary self that looks after the general economy of the human being. The author of this book does not say so, but I suggested that this other self takes care of the respiration, beating of the heart, and makes the individual look out for sudden emergencies without his own will having any thing to do with it. Well, the author of this book calls these two intelligencies or *minds*, if you choose, the objective and the subjective. The objective takes notice of the world all around us through our five physical senses. It is the reason and common-sense part of our person. The subjective works more by what is sometimes called "intuition." While the objective remembers events wonderfully, the subjective goes away beyond, you might *almost* say into the realm of impossibilites. This queer second self reveals things in our dreams that we had forgotten. He has charge of the somnambulist, the clairvoyant, the maniac; but as a rule he knows nothing except what he has heard or seen, and his astounding memory does the wonderful things. I have room here for only one illustration. Perhaps all of my readers have heard of the mathematical prodigies who have appeared here and there in ages past. Zerah Colburn, of Cabut, Vt., has been written up, perhaps, more than any other. He was born in 1804. Without going to school, and, we might say, without instruction, he solved problems in mathematics in a way that startled the whole world. There seemed to be almost no limit to his mental feats in this direction. Somebody asked him how many minutes there are in 48 years. He answered, before the question could be written down, 25,228,800; and added, on his own responsibility, that the number of seconds is 1,513,728,000. Somebody asked him to give the factors of 247,483. He answered instantly 941 and 263. These multiplied together produce the former amount, and they are the only numbers that will produce it. Then he was asked to give the factors of 36,083, and he answered instantly there are none. The book I have mentioned gives quite a history of this remarkable man. He was asked to explain where and how he got the results, but he seemed unable to answer. His father traveled with him in different parts of the world, and they undertook to educate him, thinking it would add still more to his wondrous powers; but in this they were disappointed.

Now, this astonishing memory is called intuition, or the work of the subjective mind, if you choose. The world contains more or less wonderful phenomena which may be explained by this second self, to which the author of this book offers a very reasonable explanation, and I am satisfied that there is at least much truth in it. His explanation, as I have said, does away with lots of superstition. Now, so far I can give the book a most hearty recommend; but when it comes to telepathy and mind-reading, although I am open to conviction I have not a particle of faith in it, and I can not believe the stories that are told, even in the book I am telling about. I believe in wireless telegraphy and X rays, because they are clear plain science; but I do not believe one man can influence the mind of another—that is, in the way the telepathist is said to do—whether he is one foot away from the person, or a hundred miles. The author of the book says he can make certain people *dream* certain things, even when they are sleeping miles away. Now, this thing can be easily proved or disproved. Let some educated scientific men, such as we have at our experiment stations, for instance, witness careful experiments in the matter. If they say there is truth in it, then I will humbly beg pardon of Thomas J. Hudson, LL.D., Washington, D. C., author of the book I have been talking about.

Dear friends, at this stage of my talk I discover that the story I had to tell you, bearing on the two texts at the head of this Home Paper, will have to be deferred till our next issue.

HIGH PRESSURE GARDENING BY A. I. ROOT.

DIGGING POTATOES.

Yesterday, Sept. 22, I noticed that our Manum's Enormous, Carman No. 3, Maule's Commercial, Queen of the Valley, and Sir Walter Raleigh potatoes had died down so there was no need of waiting any longer for digging. I soon ascertained that our big team could be spared from the business of the factory the next day; and it being Saturday, and no school, I could have the boys, who have picked up for so many years, to help. The ground was just dry enough after a recent soaking rain. In fact, it was a little wet in the morning; but toward noon it got to be just right. The Dowden digger worked to perfection, leaving the potatoes nicely on top of the ground. The Enormous potatoes, I think, died down with the weather or blight just before they were mature. The crop was not very large, and somewhat scabby; but the Carmans No. 3 were just beauties. Our neighbor, Dan White, of New London, O., happened to make us a visit, and he spent a good part of the forenoon in examining the nice, handsome, smooth, shapely Carmans, and declared they were the finest show of potatoes, just as they lay on the ground, that he ever saw in his life, and this is an "off year" for potatoes. To my great surprise they yield rather better than Maule's Commercial—the one that cost me $10 for a single tuber. The Commercials are rather larger; but the potatoes are too crooked in shape, and the eyes are very deep. But in quality, neither one compares with Mills' Prize. But, oh dear me! Mills' Prize, on our ground, has developed a very sad trait. It made me think of a young man who just begins to think some special girl is an angel, all but the wings. He considers her just perfect. In his eyes she is without flaw or blemish. Some time after (may be after they are married) he sees an imperfection, and is forced to believe that she is human after all. What a sad drop it is to his feelings!* Well, when I found Mills' Prize such a thrifty grower, so wonderfully prolific, and so magnificent in quality, I was going to mark it perfection among late potatoes. Lo and behold! right beside the Carmans that are not scabby a particle Mills' Prize are, many of them, very bad indeed. The Queen of the Valley is a very fine potato, and is very prolific, and we might think it very fair if we had not had a glimpse of the

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*I feel constrained to add in this footnote, that, in the case of the young lady, the trouble is not beyond remedy. Very likely the young husband can not do it, and perhaps he is not the proper one to undertake it; but Christ Jesus who cleanseth from *all* sin, is both able and willing to cure all our infirmities; and, by the way, I feel sure we are going to succeed in getting rid of this thing that troubles us in growing nice potatoes. The Mills' Prize, on other soil, grows free from scab; and I believe that, when we understand the matter properly, it may be grown free from scab in any soil. The seed was not treated before planting, because it did not seem to need it. I am sure I can do better next time.

Carmans No. 3 right alongside. The Sir Walter Raleigh is very much like the Carman. None of us can tell one from the other, if they get mixed. I believe both are seedlings of the old Rural New-Yorker.

By the way, when one really makes it his study and business, how he can can learn to know potatoes at sight! When we were digging, there was once in a while a hill among the Carmans with a long potato unlike any we have in our grounds. I had first thought it was a volunteer that came up in the row; but we found too many of them. I finally carried one to Frank, and asked him if he could tell what kind of potato that was. He said, almost at once, "Why, that looks like a Monroe Seedling." And then I remembered that my cousin in Tallmadge, who sold me the Carman No. 3, grows Monroe Seedlings almost exclusively, and these few had gotten in among the Carmans, and were not noticed at planting-time. I went to all the five pickers, showed them a sample of the Monroe, and had them watch carefully, and throw them out as they picked them up. We are doing this with all our potatoes for seed, in order that we may not have even an occasional potato not true to name among those we send out.

Before night we had put away in the cellar, all carefully labeled, over 300 bushels. But the big team was tired, and the men and boys were tired too, I assure you; and *I* was tired. Any good elevated digger makes pretty hard work for two horses, especially if the potatoes go down in the ground pretty well. Mrs. Root has complained so much about potatoes being "greened" by getting sunburned that I planted them extra deep this season; and as we do very little hilling up, a large amount of dirt had to be elevated in order to get all the potatoes and not cut any of them. There is quite a difference in varieties in regard to this fashion of going down deep in the ground. For instance, the Queen of the Valley would frequently produce a long potato, and grow it standing on end. Now, unless the digger went very deep it would cut off the lower end of a big potato. The Bliss Triumph, Early Ohio, and most of the extra earlies, are very much easier to dig than the heavy-yielding large late potatoes. Two good stout horses, however, will work the Dowden digger very well if you let them stop and rest occasionally while the potatoes are being picked up.

BUSH LIMA BEANS.

Where there was a hill of potatoes missing, we had the boys put in a hill of beans. We had some Best of All that were three years old that we were afraid would not grow, so we tried them among the potatoes. Well, every one of them grew—at least it seemed so—and they grew so luxuriantly that they were much like so many weeds among the potatoes. Where only a single hill is missing I shall hereafter not plant any thing. If two hills fail side by side, I do not know but it might do to put in one hill of beans. Well, besides the Best of All beans we put in a few hills of Burpee's bush lima, and they did exactly as they did before on this same creek-bottom land. They produced a tremendous amount of foliage, and some blossoms, but not a bean. On our yellow clay upland we get big crops of bush limas without fail; but we can not get limas of any kind on the creek bottom—"nothing but leaves."

By the way, we have this season tested an improved bush lima sent out by T. W. Wood & Sons, of Richmond, Va.; and I am pleased to report that they are quite a little larger than the old original *Henderson* bush lima, fully as prolific, and considerably earlier than the Burpee; and I do not know but they are just as good in quality as the latter. In size they are about half way between the little bush lima and the Burpee. They ought to take the place entirely of the small bush lima.

"SWARMING" THE GRAPEVINES.

In the new edition of the A B C book it will be found my grapevine project for shade has been ruled out. Ernest objected to the vines as being in the way. Our apiarist, Mr. Wardell, also objected, and Ernest submitted the matter to some of the great lights—Dr. Miller and others (I wonder if the doctor will get mad at this); and they all decided that, although grapevines are a very fine thing to have in their proper place, they did not want them around and over the hives. But I am considerably like the noted woman; I have "my own opinion still;" that is, I *do* think a grapevine apiary is a beautiful thing, and a good thing for one who has a garden, and, say, a dozen or more colonies of bees; and what I am getting at just now is that our 500 vines, planted about 25 years ago, are still growing, almost every one of them, and bearing immense crops year after year without *any* entire failure, and hardly a poor crop; and they have the least attention of any thing that I know of in the way of gardening or fruit-growing—no cultivation whatever. The vines are simply trimmed a little each winter, and tied up. Of course, Concord grapes do not bring much money; but even at the very low price of 1½ cts. per lb. we are getting quite a little income from our grapes. We advertised them once in our county paper; and, as an inducement to buy largely, we offered 50 lbs. or more for 1¼ cts. per lb.; and only 1 cent per lb. where the parties came and picked them themselves. One notice in the paper has sold something like a ton of grapes. I just had the boy weigh the crop on one vine, and it weighed 16½ lbs. This would be about 25 cts. for each vine, and they stand only 8 feet apart each way. This would be 680 vines to the acre, representing a crop worth $170.

What a wonderful thing that Concord grapevine is, any way! Great bunches of beautiful luscious fruit with so little effort, and *always* a crop! May be the number of dead bees around the hives has had something to do with making them bear, and perhaps keeping the grass down with a lawn-mower has furnished some fertility in the way of mulch, for we never carry any of the grass off from the yard. When the *Rural New-Yorker* called for a donation for Mr. Bull, the old gentleman who gave the world the Concord grape, I decided to contribute $10.00; but, like many other things, it was neglected, and then forgotten until our old friend was dead and gone. He died a poor man, almost in need of the comforts of life. It seems to me that few persons have conferred a greater boon on humanity than did Mr. Bull in giving the world this wonderful grape that now furnishes cheap fruit for men, women, and children, not only in the cities, but in almost every little town in the United States. May God help us to remember better such benefactors of the human race, and to remember them, too, while they are living, without waiting till they are gone. My friend, with very little effort you can have a grapevine. If you haven't any, get right at it this fall, and plant one. Train it up on your barn, chicken-coop, fence, or house. It will grow anywhere, and does not need even a square foot of ground. Then go to work and train it, and study its habits, and see how easily it yields to training just where you want it.

Concord grapevines can now be had of almost any nurseryman for five or ten cents apiece; and I have had them offered to me by the thousand for the insignificant price of *one cent each*. These low prices for the vines are possible because it is such a strong-growing thrifty variety. It requires scarcely any effort to grow the little vines from cuttings, just as it is little or no effort to grow the fruit; and the vines will commence bearing, usually, at the second year.

THE BUCKWHEAT CROP, AND THE LOCALITIES WHERE IT IS MOSTLY GROWN.

We clip the following from the Government Crop report for September :

> BUCKWHEAT: *Condition.*—The average condition of buckwheat on Sept. 1 was 75.2, as compared with 93.2 last month, 88.8 on September 1, 1898, 95.1 at the corresponding date in 1897, and 88, the mean of the September averages for the last ten years. In New York and Pennsylvania, which together produce about five-sevenths of the entire crop, there was a decline of 27 and 15 points, respectively, during the month. In Maine, Michigan, and Wisconsin, the only States having 20,000 acres or upward in buckwheat, the condition declined 6 points. 20 points, and 4 points, respectively.

It would seem from the above that the price of buckwheat is likely to keep up. I do not know how accurate these statistics are ; but now I can understand why York State and Pennsylvania have so much to say about buckwheat honey. It is raised considerably in Ohio, but mostly in little patches. I notice most of our buckwheat flour comes from Pennsylvania. I wonder if Michigan and Wisconsin people get as much honey from it as they do in York State and Pennsylvania.

GOVERNMENT STATISTICS IN REGARD TO POTATOES.

> POTATOES : *Condition.*—The average condition of potatoes on Sept 1 was 86.3. This shows a decline of 6.7 points during August, but the condition is still 8 6 points higher than on September 1, 1898, 19.6 points higher than at the corresponding date in 1897, and 9.3 points above the mean of the September averages for the last ten years. The decline during August extended to all the principal potato-growing States, being 10 points in New York and Ohio, 8 in Pennsylvania, 20 in Michigan, 5 in Illinois, 3 in Iowa, 9 in Wisconsin, and 4 in Minnesota and Nebraska, these being the States having 100,000 acres or upward in potatoes.

It would seem from the above that the August drouth was almost universal the United States over ; and had it not been for this, potatoes would have been a larger crop than last season. I notice that within the last few days the daily papers quote the best white table potatoes at 55 to 60 cents, which is certainly a very fair price if the growers realize that much.

GOOD ROADS.

At present writing, Sept. 30, there is a tremendous activity all around Medina, on the good-roads movement. Carloads of slag and broken limestone are on the sidings right near our factory, and farmers with teams are taking the material on every main road leading out of Medina. Our own big team is just at present grading the street in front of our factory, on the north ; and masons are at work putting in curbstones ; piles of vitrified brick for the gutters lie on the sidewalk, and we expect to have a different order of things before the muddy season comes. The pleasant thing about it is, that it is *voluntary* work. Everybody is helping, and everybody is working hard, for everybody is doing a work that will be abundantly appreciated, not only by himself, but by all his neighbors, when the muddy season is on us again. We first grade the roads, making ditches two or three feet deep along the sides. These ditches will give ample drainage. Then the top of the road is nicely rounded over. Then we put on, first, on the clay, five or six inches of slag ; then enough broken limestone to make a good plump foot. The roadway is wide enough so that we have ample room for a dirt road and a stone road. In summer everybody prefers to travel on the dirt road, as it is easier for the horses' feet; but whenever it rains, then all take to the stone road until the dirt road is dry enough to travel on without cutting it up. When you get into town, or very near it, where teams are passing so frequently that a 12-foot stone road would not accommodate, then we make it 24 feet wide.

HEALTH NOTES

BY A. I. ROOT

ROBBING SICK PEOPLE ; CURING PEOPLE HUNDREDS OF MILES AWAY, WITHOUT GIVING THEM MEDICINE OR ANY THING WHATEVER.

One of the latest fads seems to be what is styled in the advertisements "Modern Miracles," or "absent method" of treatment. Some great professor has a wonderful *magnetic* power. I hope somebody knows what this means. Iron and steel have magnetic properties, but not human beings. Well, never mind. These magnetic healers send out most astonishing testimonials. Jesus, at least once in his ministry, healed a nobleman's son when he was quite a distance from the patient.

These new professors do the same thing, not only every week, but at every hour of the day. I have sometimes surmised they cure people without giving them a thought. The papers give us pictures of these wonderful healers. How wise and "magnetic" they look! I think that must be the word. Do you ask me to explain how it is that people get well after sending the professors money? Why, it is in exactly the same way that Electropoise and Oxydonor cure. The patient gets it into his head that all this great professor says is true. Some of the neighbors get the same insane idea that this man in question has some wonderful miraculous power. They talk it over and become excited about it, especially in reading how the blind have been made to see, the lame to walk, and all that. It does not seem to make much difference what the malady is, for we are told the most stubborn diseases give way like "magic." Now, this whole business is a disgrace to the present age and present scientific attainments. Where are our schools and colleges? where are our ministers of the gospel? To be *sure*, it is the business of *ministers* to help expose such frauds. These charlatan professors are bad men, every one of them. A great part of them never make any *professions* of Christianity. You remember I have already told you about the man in Arkansas who thanked God for whisky, and says he gets drunk whenever he feels like it. But people who know this will have it that he has a wonderful healing gift, and *send him money*. A lady sends me an advertisement of the great Nevada healer, of Nevada, Mo., and says it is spreading in her neighborhood, and like reports are coming from other "healers" from almost all parts of the United States. People have plenty of money to send to these thieves who are robbing sick people; but when the calls come through the daily papers for help for the starving people of Porto Rico, everybody seems to be hard up, and no one has even a *cent* to spare. May God help us!

Special Notices by A. I. Root.

GARDENING IN OCTOBER.

As a rule there are not many seeds to be planted during this month; but in some localities it is the very best time to sow wheat, because it better escapes from the fly But you can sow rye everywhere and any time; and I would put in either wheat or rye on every piece of vacant ground. It looks pretty, it is good for poultry, and it is worth all it costs to plow under in the spring. I am beginning to have considerable faith in plowing under a heavy growth of wheat since my success in growing potatoes in that way. Some might think it "wicked" to plow under a heavy growth of wheat; but the wheat costs little if any more than rye, and I am inclined to think it is worth more. Of course, you can go on with many kinds of gardening if you have sashes or even cotton cloth. The cotton cloth works beautifully along in the fall when you simply wish to keep off frosts or freezes; but when there are considerable falls of snow, especially snow and rain together, the cloth is "not in it." At such a time you will wish you had glass; but for many hardy plants such as cold-frame cabbages, strawberries, lettuce, etc., the cloth answers admirably. It is better than glass in one respect, for the plants never get too hot in the middle of the day, even if you forget to roll up the cloth. Just now I am planning a cold-frame bed about 30 feet square so I can use *either* cloth or glass. Whenever it rains, no matter what month in the year, I do not want either cloth or glass. I expect to have the cloth rolled up under shelter on the north side of the bed when it rains or when it is not wanted; and the sashes will also be under cover on the south side of the bed when they are not needed over the stuff. In all moderate weather I would simply roll down the cloth and roll it up again, which is ever so much less work than handling sashes. But during severe freezing weather the sashes will be in place; and when it is "awful" cold I can use the sash and cloth both. I shall use it principally for growing high-priced strawberries. When the strawberries are in full bloom (I expect them to blossom a month ahead of those outdoors), the cloth will protect the blossoms from frost; and when the season is exceedingly hot in the middle of the day at bearing time, I shall roll down the cloth to protect the berries from being scalded as they were during the season just past, when it was terribly hot. I have tested partial shade for strawberries already, and I am sure it is a big advantage for a few hours in the middle of the day—at least when it is very warm.

PLANTING OUT SMALL FRUITS AND NURSERY STOCK IN OCTOBER.

We plant more or less strawberries every year in October, and we rarely have a failure; but I confess that it needs better soil, and you will need to take more pains with the work than at any other season. If you have tried it, and have succeeded during former seasons, then go right on with your planting; but if you have not, I would advise you to test your soil as well as your own skill on a small scale before you do much of it. There is something peculiarly fascinating to me in seeing strawberries and other hardy plants grow when every thing else is dying; and with a little protection, such as the cloth cover, during frosty nights, you can have a magnificent garden of hardy plants through October and November. In regard to planting general nursery stock in the fall instead of the spring I would say, as I have said with strawberries, if you have tested your locality and your skill in former years, and know they are all right, then go ahead. The apple-tree that bore two nice apples the first year, and seven the year after, was planted out in the fall; and I rather like fall planting for almost all kinds of fruit-trees. There is not a liability of neglecting it till it is too late, and there is no trouble about plenty of moisture after the trees are put out. Besides, you have plenty of time to do the work *well*. If your soil is good and rich, and well underdrained, and worked up fine, there is hardly a chance for failure. Pound the dirt down around the roots of your trees as hard as you can hammer it with a pounder. We have always had excellent success in planting out basswood-trees in the fall. We have a nice lot of small seedlings of our own growing. Price 5 cts. for 1; 30 cts. for 10; $2.00 per 100. If the above are wanted by mail, 8 cts. for 1; 35 cts for 10; $2.25 per 100 The above are for plants one foot and under. If you want larger ones, see our catalog, mailed on application.

ADVANCE IN SPINACH SEED.

With the general advance in so many commodities, it is not at all strange that staple seeds are going up. Spinach seed that we have been offering in 10-lb. lots at 12½ cts. is now just double that price—that is, 25 cts. per lb. is the best price we can make; and even for lots of 10 lbs. we can not do better than 20 cts.

PRICES ON POTATOES FOR IMMEDIATE SHIPMENT.

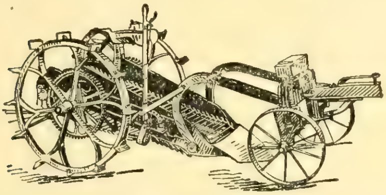
On next page are prices for such potatoes as we have dug ready to ship. Some other varieties not yet got into the cellar will be priced a little later. If you order now, there will be no danger of freezing in transit, and the prices are often quite a little lower than they are in the spring. Carman No. 3 and Sir Walter Raleigh we think are specially reasonable at only $2.50 per barrel; but we have a large stock of both, and so we offer them low. There will be a few seconds, but not very many, as they grow so uniformly large and perfect. Our seconds are almost always sold long before spring, so if you want them you had better put in your order at once. Please remember if you buy seconds you must take your chances on getting some scabby potatoes; but many of them will be first in size and in every other respect except being scabby; and if you treat them at planting time with corrosive sublimate my experience is they will be as good as perfectly clean potatoes They do not look quite so nice, and a good many people are afraid to use them for seed, even after being treated. I have tried the treatment with corrosive sublimate for several years, and I believe it kills the fungus completely.

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck	Peck.	½ bushel	Bushel	Barrel—11 pk.
Red Bliss Triumph.......	$ 18	$ 40	$ 25	$ 40	$ 75	$ 1 25	$ 3 00
Bovee......................	18	40	25	40	75	1 25	3 00
E Thoro'bred, Maule's..	18	40	20	35	60	1 00	2 50
Early Ohio..... .	18	40	25	40	75	1 25	3 50
Burpee's Extra Early...	18	40	25	40	75	1 25	3 00
Freeman	18	40	20	35	60	1 00	2 50
New Queen	18	40	20	25	60	1 00	2 50
Monroe Seedling...	15	35	20	25	40	75	2 00
Rural New-Yorker No. 2	15	35	20	25	40	75	2 00
Mill's Prize	15	35	20	25	40	75	2 00
Carman No. 1	18	40	20	35	60	1 00	2 50
Carman No. 3	18	40	20	35	60	1 00	2 50
Sir Walter Raleigh.....	18	40	20	35	60	1 00	2 50
State of Maine....	15	25	20	25	40	75	2 00
Manum's Enormous ...	18	40	25	40	75	1 25	3 00
New Craig....	18	40	25	40	75	1 25	3 00

Seconds of any of the above will be half price.

Advertiser's Department of Short Write-ups.

How are you Going to Dig your Potatoes?



It is time in most places to be digging potatoes; and, in fact, in some places it is past time. If you want something that will put the potatoes *all* on top of the ground, and do it, too, with one good strong team, you probably can not do any better than to use the Dowden potato-digger, made by the Dowden Mfg. Co., Prairie City, Iowa. Drop them a postal card, and they will cheerfully give you all the particulars, answering every question anybody will probably ask in regard to the machine. Mr. A. I. Root, of the A. I. Root Co., is using one with excellent satisfaction in digging his crop of potatoes grown expressly for seed.

Poultry Supplies.

Years ago, when I first started furnishing implements for bee-keepers I sometimes used to lament that there was no institution for furnishing poultry-keepers and egg-producers complete outfits for their business, such as were then offered to bee-keepers. Well, of late I have been agreeably surprised to see large fine catalogs, illustrating every thing that the poultry-man can possibly want, and at exceedingly reasonable prices Just now I have looked over with great interest a catalog, from the Reliable Incubator Co., Quincy, Ill. It contains 150 pages, and they offer every thing from a simple egg tester up to a full-grown poultry-house—no, no! I do not quite mean full-grown; but they offer a poultry-house in the flat, of the most approved pattern, including door and window, nest-boxes, roosts, and all, for only $20.00. They make these in such quantities that they furnish them painted, all complete, and as cheap as the ordinary person remote from the lumber-camps could purchase the material for—yes, at times for *less* than they could buy even the rough lumber for it. It is put together with hooks and eyes in such a way that one can set it up in a few minutes without even driving a nail. I think it will pay every poultry-grower to send for their catalog, and look at the pictures. It will give him some hints, even if he does not buy a cent's worth of the company.—A. I. R.

GOLDEN ITALIAN QUEENS.

Virgins our specialty - - 40c each, or 3 for $1.00.
Gardiner L. Ellis, - - Millsboro, Del.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—For cash, No. 1 white honey in Danz. 4×5 plain sections. Write for particulars. Four sizes of Prize cartons for comb honey, and 66-page book, "Facts about Bees," for 6 cts. in stamps.
F. DANZENBAKER, Box 66, Washington, D. C.

WANTED.—To exchange a beautiful parlor heater (direct from factory) for beeswax.
L. L. ESENHOWER, Spring City, Pa.

WANTED.—To exchange 3-band or golden queens bred in separate yards, tested or untested, for any thing useful to a bee-keeper.
JNO. M. DAVIS, Springhill, Maury Co., Tenn.

WANTED.—To exchange Barnes No. 7 improved scroll-saw (price when new $15), in good condition, for Cowan rapid reversible extractor in same condition, or offers. Address
W. J. FOREHAND, Fort Deposit, Ala.

WANTED.—To exchange Barnes combined saw and 38–40 caliber Marlin repeating rifle.
ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To buy or rent a small farm in a good location for bees, with a bee-yard on place.
J. E. HENDERSON, Elm Grove, Ohio Co., W. Va.

WANTED. — To exchange piano, organ, graphophone, or other articles for first-class sections, comb foundation, queen and drone traps, Clark's smokers, and other bee-fixtures. Address
F. C. BREWER, Parkesburgh Pa.

WANTED.—To exchange an X ray apparatus, in good condition, for typewriter. For particulars, address R. M MURRAY, Ada, Ohio.

WANTED.—To sell or exchange a coop of homing pigeons for honey, brood or extracting combs, hives, or other offers.
C. H. LOTHROP, Everett, Mass.

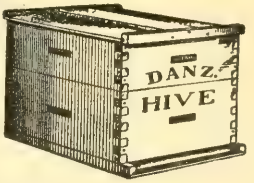
WANTED.—To exchange bees for barred, white, and buff Plymouth Rocks. Also sweet-clover seed at 5 cts. a package. MRS. A. A SIMPSON, Swarts, Pa.

WANTED.—Bushel of papaws. Send price, etc.
HENRY WILSON, Box 441, Clinton, Ill.

WANTED.—To pay $5 00 for description of best bargain in small farm where white clover and basswood will profitably support 100 colonies of bees
C. L. MICHAEL, Upton, W. Va.

WANTED.—To exchange a few bushels of sweet-clover seed for untested Italian queens
R. GOULD, Crawford, Miss.

FACTS About Bees.
REVISED EDITION.
How to get
GILT-EDGED HONEY
Send 2c stamp to
THE A. I. ROOT CO.,
Medina, Ohio,
or F. Danzenbaker,
Box 66 Washington, D.C.



FOR SALE.—$400; easy terms. Ten acres improved. Suitable for bees, poultry, fruit, and gardening; fine bearing peach-orchard; plums, cherries, pears, figs, and strawberry-patch; adjoining the magic city of Fitzgerald, Ga.; old soldiers' colony. The fruit will pay for the place in two years. Climate fine.
Enquire of K. L. CHERRY, Fitzgerald, Ga.

FORTY PICTURES.

The editor of the Bee-keepers' Review, in July last, spent nearly three weeks with note-book and camera among the bee-keepers and supply-manufacturers of Wisconsin, bringing home with him many items of interest and value, and about forty views of apiaries, hives, factories, etc., all of which will eventually find their way into the Review. Arrangements have also been made with some of the best bee-keepers of Wisconsin to describe, in the Review, before the opening of another season, the methods whereby they have been so successful. If not a subscriber send $1.00, and the Review will be sent you from now to the end of 1900—you will get the rest of this year free. You can also get the Review from now to the end of 1900, and one of those queens of that superior stock that I have been advertising, for only $2.00.

W. Z. Hutchinson, : : : Flint, Michigan.

BEE-SUPPLIES!

ROOT'S GOODS AT ROOT'S PRICES.

Pouder's Honey-jars, and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

W. S. Pouder, 512 Mass. Av., Indianapolis, Ind.

SAY! Did you know the **Western Bee-keeper** has changed hands? C. H. Gordon is now editor and publisher. . . . .

Wanted! Every bee-keeper, large or small, to send 15c for 4 mos trial. Sample copy free. .

47 Good Block, : Denver, Colorado.

In writing, mention Gleanings

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

Dovetailed Hives,

Sections, Extractors, Smokers and every thing a bee-keepe wants. **Honest goods at clos honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala

Queens by Return Mail.

Daughters of best imported Italian queen mothers; reared by Doolittle method; warranted purely mated to drones of imported stock from a different source—hence, a direct cross. Fourteen years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens 50 cts. each. Safe delivery and satisfaction in every case, or money refunded.

L. H. Robey, Worthington, W. Va.

SWEET-CLOVER SEED in the hull for sale at 5 cts. per pound. For orders of 50 lbs. or more, address Jos. Shaw, Box 64, Strong City, Chase Co., Kan.

QUEENS, QUEENS, QUEENS.

By Return Mail.

Bred from imported mothers; dark leather-colored stock; extra honey-gatherers; also from light yellow and albino strains at very low prices. My stock is of the best. Forty years' experience warrants me in saying this.

Select tested	each,	$1.50.
Warranted purely mated	each,	.75.
Warranted purely mated	six,	4.00.
Warranted purely mated	dozen,	7.00.

Send for 40-page catalog of bees and queens; also a full line of bee-keepers' supplies, including The A. I. Root Co.'s goods at their prices.

W. W. CARY, - Lyonsville, Mass.

CHAS. ISRAEL & BRO.,

486, 488 & 490 Canal St., Corner Watts St., N. Y.

Honey and Beeswax.

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Wholesale Dealers and Commission Merchants.
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Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

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ROOT'S GOODS--ROOT'S PRICES

Langstroth hives, Muth honey-extractors, etc. WE carry a complete line of Root's goods and sell at their prices.

Muth's Square Glass Honey-jars

are just the thing you want *now* to develop your home market for your extracted honey.

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C. H. W. Weber, 2146 Cent. Av., Cincinnati.

Successor to Chas. F. Muth & Son and A. Muth.

The
Western Bee-keeper
Is exclusively devoted to apiculture in the
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of all kinds among bee-keepers; and also gives the main points of what the other bee-papers are saying.

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HONEY-JARS.
One-pound, square, $4.70 per gross, with corks; 5 gross at $4.50 a gross.

OUTSIDE CASES.
For wintering bees; include bottom, body, gabled cover; 60c ea.; 10, $5.50. Catalog, describing every thing a bee-keeper needs, will be sent free.

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We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.
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begins with good wheels. Unless the wheels are good the wagon is a failure. IF YOU BUY THE **ELECTRIC STEEL WHEEL** made to fit any wagon—your wagon will always have good wheels. Can't dry out or rot. No loose tires. Any height, any width tire. Catalog free.
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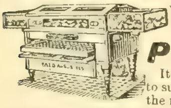
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It deals with all those subjects which tend to success in the poultry business, treated by the masterful hand of experience. No subject neglected, it hits them all. It's practical; can be adopted by everybody in the poultry business. Tells about the renowned **Reliable Incubators and Brooders.** Book sent for 10c to cover postage
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COLUMBIA INCUBATOR CO., 8 Adams St. Delaware City, Del.
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QUEENS. Untested, warranted purely mated, after July 1, 55 cts. each; 6 for $3.00. Select tested, $1.00 each; 6 for $5.00. Extra select breeding queens, $2 00 each. The very best of golden Italians. E. A. SEELEY, Bloomer, Ark.
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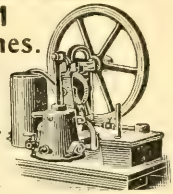
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BOX 17, Racine, Wis.
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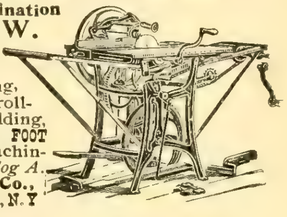
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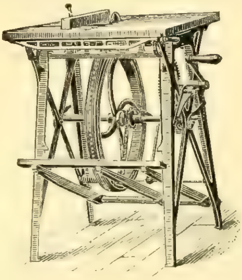
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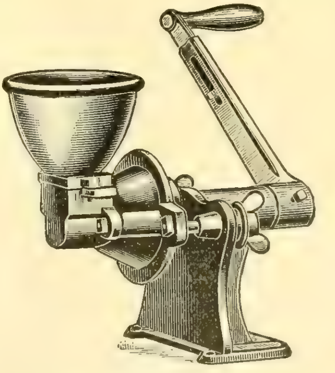
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Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**
Address **The Frank Machinery Co., Buffalo, N. Y.**
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SPECIAL NOTICES BY BUSINESS MANAGER

NEW PRICE LISTS.

As announced in former issues we now publish some additional revised price lists, made necessary by the great advance in the cost of raw materials which has taken place during the past few months, and still continues. While the price of lumber of which we make hives and frames and other fixtures has advanced 40 to 50 per cent, we have added only about 20 per cent to the price of hives, frames, shipping-cases, and other articles of wood. We hope a further advance may not be necessary; but if present conditions continue for another six months, another advance in the price would have to be made to keep up to the advancing price of lumber and other materials.

DOVETAILED-HIVE PARTS AND COMPLETE HIVES.

See catalog for explanation of letters and figures. Add —8 to No., as noted below.	Nailed & painted.	EIGHT FRAME. KD in flat. 1	5	10	25	Weight of 10.
AD5 —8 hive	1 30	1 05	4 50	8 50	20 00	190
AD6 — 8 hive	1 40	1 15	4 75	9 00	21 25	195
AD52P, or S, or I—8 hive	1 75	1 40	6 25	11 50	26 25	260
AD64P, or S, or I—8 hive	2 10	1 65	7 25	13 50	31 25	280
AD522P, or S, or I—8 hive.	2 20	1 75	8 00	14 50	32 50	320
AD644P, or S, or I—8 hive.	2 80	2 15	9 75	18 00	41 25	350
AD55—8 hive	2 05	1 65	7 25	13 50	31 25	320
AD66—8 hive	2 25	1 85	7 75	14 50	33 75	330
AD58—8 hive	1 75	1 40	6 25	11 50	26 25	270
AD69—8 hive	1 95	1 60	6 75	12 50	28 75	280
A or B bottom or floor	25	20	80	1 50	3 50	40
C, D, F, or G cover	30	25	1 10	2 00	4 50	40
Empty body	45	35	1 50	2 80	6 50	80
5 body	75	60	2 75	5 00	12 00	130
6 body	85	70	3 00	5 50	13 25	135
Shallow super	25	17	75	1 40	3 25	40
2P, or S, or I super	45	35	1 75	3 00	6 50	65
3P, or S, or I super	60	45	2 25	4 00	8 75	75
4P, or S, or I super	70	50	2 50	4 50	10 00	75
Deep super	25	18	80	1 50	3 50	50
8 super	45	35	1 75	3 00	6 50	80
9 super	55	40	2 00	3 50	7 75	85
Hive stand	15	10	50	1 00	2 25	40
		TEN FRAME.				
AD5—10	1 45	1 15	5 00	9 50	22 50	220
AD6—10 hive	1 55	1 25	5 25	10 00	23 75	225
AD52P, or S, or I—10 hive.	1 95	1 55	7 00	13 00	30 00	300
AD64P, or S, or I—10 hive..	2 30	1 85	8 00	15 00	35 00	320
AD522P, or S, or I—10 hive	2 45	1 95	9 00	16 50	37 50	380
AD644P, or S, or I—10 hive	3 05	2 45	1075	20 00	46 25	420
AD55—10 hive	2 25	1 80	8 00	15 00	35 00	360
AD66—10 hive	2 45	2 00	8 50	16 00	37 50	370
AD58—10 hive	1 95	1 55	7 00	13 00	30 00	310
AD69—10 hive	2 15	1 75	7 50	13 50	32 50	320
A or B bottom	30	22	90	1 70	4 00	45
C, D. F, or G cover	35	28	1 25	2 30	5 25	45
Empty body	50	40	1 70	3 00	7 00	90
5 body	80	65	3 00	5 50	13 25	150
6 body	90	75	3 25	6 00	14 50	155
Shallow super	30	20	85	1 50	3 50	45
2P, or S, or I super	50	40	2 00	3 50	7 50	80
3P, or S, or I super	65	55	2 50	4 50	10 00	95
4P, or S, or I super	75	60	2 75	5 00	11 25	100
Deep super	30	21	90	1 60	3 75	50
8 super	50	40	2 00	3 50	7 50	85
9 super	60	50	2 25	4 00	8 75	90
Hive stand	15	10	50	1 00	2 25	40

DOVETAILED T SUPERS.

Name and Description.	Nailed each	In flat. 1	5	10	Wt. of 10.
Dov. T supers with tins only	30	.25	1 25	2 00	40 lbs
Dov. T super complete except sections and starters	45	.35	1 75	3 00	50 lbs
Dov. T. super complete	70	.50	2 50	4 50	70 lbs

CHAFF HIVES AND PARTS.

Designating letter or figure. For explanation, see catalog.	Nailed and painted	Eight-frame. In flat. 1	5	10	25	Wt. 10
YW5 hive	2.40	1.90	8.75	16.50	38.25	360
YW52P, or S, or I hive	2.85	2.25	10.50	19.50	44.75	420
YW64P, or S, or I hive	3.20	2.50	11.50	21.50	49.50	440
Y telescope cover, 7-inch	.50	.40	1.80	3.40	7.50	90
X deep teles. cover, 11-inch	.60	.50	2.30	4.40	10.00	110
Chaff-tray	.20	.15	.70	1.20	2.50	30
Super-cover	.10	.10	.50	.90	2.00	10
W chaff-hive body	1.30	1.00	4.50	8.80	21.25	200
W5 chaff-hive body with frs	1.60	1.25	5.75	11.00	26.25	330
W6 same with frs. & starts.	1.70	1.35	6 00	11.50	27.50	235
Z winter-case body	.50	.35	1.70	3.20	7 50	70
YZ winter-case complete	1.00	.75	3.50	6.60	15.00	160

DANZENBAKER HIVES.

NAME AND DESCRIPTION.	Paint'd Nailed	KD in flat. 1	5	10	25	Wt. 10
Danz. 5 hive	1 40	1 10	4 75	9 00	21 25	200
Danz. 5-2-M. hive	2 15	1 70	7 50	14 00	32 50	300
Danz. 6-4-M. hive	2 60	2 00	8 50	16 00	37 50	330
D. 5 body with frames	75	60	2 75	5 00	12 00	120
D. 6 body, frames, starters	85	70	3 00	5 50	13 25	125
D. 2-M. super, no sections	75	60	2 75	5 00	11 25	120
D. 3-M. super and sections	95	75	3 25	6 00	13 75	120
D. 4-M. sup., sect., & start.	1 11	80	3 50	6 50	15 00	120
Danz. sample hive			5 00	9 00	22 50	210
Danz. 3-M. sample super			4 25	8 00	18 50	150

DANZENBAKER FRAMES.

	In flat, per 100,	per 1000.
Danz. closed-end frames, 7½x17	$2.00	$18.00
Danz. section-holders, 5⅜x17	2.00	18.00

BROOD-FRAMES.

Name.	Put up 100	In flat 10	100	500	Wt. of 100
Hoffman frames, end-spaced	3 00	25	2 10	9 00	35 lbs.
Thick-top staple-spaced frs	2 50	20	1 80	8 00	35 lbs.
All-wood frames	2 00	17	1 50	6 50	25 lbs.
Shallow ext.-frames (5⅜-in.)	2 00	17	1 50	6 50	22 lbs.

DIVISION-BOARDS.

	Pr. of 1	—10	Wt. of 10
Chaff division-board, complete	$ 25	$2 20	20 lbs.
Chaff division-b'd, flat, no chaff	13	1 10	13 lbs.
Plain division-board, nailed	10	90	10 lbs.
Plain division-board, flat	08	60	9 lbs.

SECTIONS —4¼×4¼×1½ to 2 inches.

	No. 1.	No. 2.		No. 1.	No. 2
Per 100,	$ 50	$ 40	1000	$3 50	$3 00
Per 250,	1 00	85	3000	9 75	8 25
Per 500,	1 75	1 50	5000	15 75	13 25

SECTION-HOLDERS, SEPARATORS, AND SLATS.

	Price of 100	500	Wt. of 100
Slotted section-holders, 1⅞x18⅛ outside	1 50	6 00	35 lbs
Slotted section-slats, ¼x1⅞x18⅛	75	3 00	15 lbs
Plain section-holders, 1½x17½ outside	1 20	5 00	20 lbs
Ideal plain slats, ⅜x1½x18⅛	75	3 00	18 lbs
L plain slats, ⅜x1⅜x12	50	2 00	10 lbs
Slotted sawed separators, 4½x18⅛	80	3 50	8 lbs
Plain sawed separators 3¾x17 to 20	50	2 25	6 lbs
Slat separators	1 00	4 50	10 lbs
I, P, S, T, and L fences	1 35	6 00	11 lbs
M fences	1 50	7 00	13 lbs

EXTRACTORS, ETC.

Nos. 4 and 5 Novice	$ 8 00.
Nos. 7 and 10 Novice	9.00
No. 15 Cowan	11 00.
No. 17 Cowan	12.00.
No. 18 Cowan	13.00.
No. 20 Cowan	16.00.
No. 25 Cowan	20.00.
No. 30 Cowan	26.00.
17-inch bevel gear	1.50.
20-inch bevel gear	1.75.
Dadant uncapping-can	8.00.
Doolittle wax-extractor	3.60.
Boardman wax-extractor	7.50.
Boardman wax-extractor—no glass	4.50.

ZINC.

Root zinc strips, 1 row holes, ¾x18 to 19⅛, per 100, $1.10.
Tinker zinc strips, 2 rows holes, 13/16x18 to 20, 100, $1.50.
Root zinc sheets, 28x96 inches, each $1.60.
Tinker zinc sheets, 24x40 inches, each 80c.
Cut pieces of Root zinc, 12c a ft.; Tinker zinc, 15c a ft.
Entrance-guards, Tinker zinc, $1.00 for 10.
Entrance-guards, Root zinc, 75c for 10.

TINNED WIRE.

Sizes furnished.	Price each	Price doz.	Post. each.
¾-oz. spools No. 30 tinned wire..........	$ 03	$ 30	02
¼-lb. spools No. 30 tinned wire.....	12	1 20	06
½-lb. spools No. 30 tinned wire..........	20	2 10	10
1-lb. spools No. 30 tinned wire..........	30	3 30	18
5-lb. coils No. 30 tinned wire..............	1 00		

SHIPPING-CASES.

NAME AND SIZE OF CASE.	Nailed, each.	Price complete including 3-inch glass 1 side, nails, & paper, in flat. 1	10	100	With 2-inch glass instead of 3, per 100.	Without the glass per 100.	Wt. per 100—in lbs.
12-in. 4-row for 4¼ s'n	20	18	1 70	$15 00	$13 50	$12 00	450
10-in. 4-row "	20	18	1 60	14 00	12 50	11 00	400
12-in. 2-row "	15	12	1 10	9 00	8 25	7 50	225
10-in. 2-row "	15	12	1 00	8 50	7 75	7 00	200
16-in. 2-row "	16	13	1 20	10 00	9 25	8 50	300
8-in. 3-row "	15	13	1 20	9 50	8 50	7 50	225
6½-in. 3-row "	15	12	1 10	9 00	8 00	7 00	200
7⅜-in. 4-row for 4x5...	20	18	1 70	14 00		11 00	300
7⅜-in. 3-row " ...	16	13	1 20	10 25		8 50	250
9½-in. 4-row for 3⅝x5	20	17	1 60	13 10		11 00	350
6⅜-in. 3-row "	15	13	1 20	9 25		7 50	200

Manum swarm-catcher, with pole, $1.25.
Manum swarm-catcher, without pole, 90c.
No. 25 jars, 2 doz. in a box, $1.25: 6 boxes, $7.00.
No. 25 jars, 12 doz. in a barrel, $6.00.
Double-pointed tacks, 25c lb.; 10 lbs., $2.20.
Wire-cloth staples, 25c lb.; 10 lbs., $2.20.
Crate staples, 20c lb ; 10 lbs., $1.80.
End-space staples, 20c lb.; 10 lbs., $1.80.

FEEDERS.

Simplicity feeder, 5c each; 40c for 10.
Gray covered feeder, 15c each; $1 40 for 10.
Miller's feeder, nailed, 25c each; $2 30 for 10.
Miller's feeder, in flat, 10c; $1.80 for 10.

MAPLE SYRUP.

Now that cold weather is returning again we are reminded of pancakes and molasses. The very choicest variety of the latter comes from the sugar maple. We are prepared to supply it at $1.00 per gallon, or $9.00 for 10 gallons. We have no maple sugar to offer, as this was picked up close in this vicinity last spring.

BUSHEL CRATES AND BOXES.

During the past two or three months we have had a very lively trade in bushel boxes and crates, and our accumulation of material is now well worked off. It is impossible to turn out these crates from whole stock at the present price of lumber and nails; and furnish them at the old prices, except at a loss. We are obliged therefore to withdraw old prices, and for the present quote the following: All slatted, per crate of 15, $2.10; slatted, per crate of 12, $1.80; galvanized bound, per crate of 12, $2.40. Two in each crate are nailed up, and the others are packed inside, including nails to nail them.

HONEY WANTED.

We are still in need of honey. We have not been able to meet the demand upon us, as we could not find the honey, although we have paid much higher prices than formerly. Several times this season we have received offers which we promptly accepted, then resold the honey to other parties. When it came time to deliver, the honey was not forthcoming, and we have had great difficulty in finding other lots to supply our customers, who insisted on getting the honey whether we failed in getting it or not. Be careful not to offer honey that you have not in hand or are not sure of; and when you offer it, and the offer is accepted, don't let some one else have it, although he pays a higher price.

SECOND-HAND FOUNDATION-MILLS.

We have at this writing the following second-hand foundation-mills which we offer at the following prices:

No. 1858. One 6-inch Root mill. This will make fair thin or extra thin ; is in good order, but has several cells slightly damaged. Price $12.00

No. 1949. One ten-inch Root mill with hexagonal cell and 2½-inch rolls. This has been used in our wax-room, and is in first-class condition for thin super. A new mill of this style is worth $30.00. Will furnish this one for $20.00.

No. 05. Six-inch mill with two-inch roll, and makes fine foundation. Price $12.00

No. 06. Six-inch mill with 2½-inch roll. This has been used only a few months, and will make good foundation. Price $15 00.

No. 07. Six-inch mill with 2½-inch roll. This was made for thin super. It has seen considerable use, but for a general-purpose mill it will do very well, as it would make good light brood. Price $12.00.

No. 08. Six-inch mill with two-inch roll. This is in fine order, almost equal to new. Price 15 00.

No. 09. Ten-inch round cell with two-inch roll; in fair order. Price $18.00.

No. 010. Ten-inch hexagonal cell with two-inch roll. This mill would be practically as good as a new mill for a bee-keeper making his own foundation only. Price $20.00.

No. 011. Ten-inch mill, round cell with two-inch roll. Price 15.00.

Send for samples of the mills you are interested in, provided you intend to purchase, and state which ones you wish to see samples of, and we will forward them promptly.

CONFUSION IN POSTOFFICES.

As many of the subscribers to GLEANINGS IN BEE CULTURE are customers of ours we take space to insert the following letter and explanation, hoping thereby to save others and ourselves the annoyance of getting things mixed in shipping:

"In the renewal of my subscription to GLEANINGS, and the clock to be sent with it, I see you have made a mistake and shipped it to Albany, now Bernice, Tuscarawas Co , instead of Lee, now Albany, Athens Co., O. The name of the office has been changed. I received a letter directed to Albany, now Bernice, forwarded from there to Lee, now Albany, informing me that the clock had been shipped. I have not received the clock yet, so please look it up and inform me." C. O. Z.

Albany, Athens Co., O. Jan. 29, 1899.

You will notice this order was received early this year, and came just before our new guide for 1899 was received. The old guide reads as follows:

Albany, Athens Co , O. (*Lee, Postoffice.*)

Albany, Tuscarawas Co., O. (New Comerstown.)

The above is from the 1898 guide, and indicates that the first named is a railroad station, while the same town is known as Lee in the Postal Guide. The next Albany is a postoffice, and New Comerstown is the nearest shipping point. Now, about the first of the year a change was made in the postal service, so that the first one is now Albany, both the postoffice and railroad name, and Lee is not found in Ohio at all. Then, that there might not be two postoffices by the same name, the Albany in Tuscarawas Co. was changed to Bernice. Our customer, so far as we know, received his goods not very long after he wrote this letter, as we had them forwarded from the other station. As no county was given in the order, and because of the change which occurred before the new guide came in, the mistake was made. There are numerous other cases where there are two or more railroad stations of the same name in one State, and it is important that the county be always given; and be sure to give the railroad name, if it is different from the postoffice name; or if the shipping-point is another place, be sure to specify this.

One other point that has occasioned some delay in customers being notified of the receipt of their order is the fact that they would give the name of their shipping-point, and their postoffice was either a different place or else known by a different name, consequently our notification-card and invoice would be returned to us. Too much care can not be taken in making out orders. Use our order-sheets if you would avoid delay and annoyance.

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thousands of them are **MAKING MONEY** out of eggs. It's pleasant and profitable. They double the egg product **by feeding Green Cut Bone and Granite Crystal Grit.**

MANN' NEW BONE CUTTERS
cut fast, fine and so easy that any woman can work them. **Mann's Clover Cutters and Swinging Feed Trays** pay big for their investment. **Cash or Installments.** Send for our free illustrated catalogue. **F. W. MANN CO., Box 37 Milford, Mass.**

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Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.

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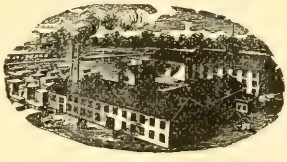

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January 27, 1897. Truly, W. H. Eagerty, Cuba, Kansas.

Direct-Draft Perfect BINGHAM BeeSmoker
PAT. 1879

Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

CHICAGO.—We have a strong market on all grades of honey, and while there is no perceptible advance in prices they are well sustained. Fancy grades of white comb, 15, and good grades, 13@14; amber, best grades, 11@12, and off grades, 9@10. Extracted, choice in flavor and white in color, 7½@8; light amber, same grade, 7@7½; off in quality and color, 6@6½; dark and light body, about 5@6; beeswax, 26@27. This is the most active month of the year for sale of comb honey in this market. R. A. BURNETT & Co.,
Oct. 7. 163 S. Water St., Chicago, Ill.

CINCINNATI.—The demand for honey, both comb and extracted, is very good, with prices much better than a few weeks ago. Fancy comb is wanted, and finds ready sale at 15@16. Darker grades are hard to sell at any price. Good demand for all grades of extracted. White clover and basswood brings 8@8½. Amber and southern is wanted at from 6@7. Good demand for beeswax at 26. Do not handle honey on commission—buy for spot cash only.
C. H. W. WEBER,
Successor to Chas. F. Muth & Son,
Oct. 7. 2146-48 Central Ave., Cincinnati, O.

SCHENECTADY.—Fancy white honey is so scarce that it commands a high price, and a fair quality sells readily at 13@14; buckwheat, 10@11; extracted dark in 60-lb. cans, 6½; kegs, 6. C. McCULLOCH,
Oct. 9. Schenectady, N. Y.

ALBANY.—Honey market continues active. Fancy white clover selling at 15@16; mixed, 12@13; dark, 11@11½; white extracted, 8½@9; mixed, 7@7½; dark, 6½@7. Beeswax, 26@28. MACDOUGAL & Co.,
Successors to Chas. McCulloch & Co.,
Oct. 7. Albany, N. Y.

KANSAS CITY.—The receipts of comb honey is large, but receipts of extracted is light. We quote No. 1 white comb, at 14c; No. 2, white, 13; No. 1 amber, 13½; No. 2 amber, 12½; extracted, white, 7@7½; amber, 6@6½; dark, 5@5½; beeswax, 22@25.
C. C. CLEMONS Co.,
Oct. 11. Kansas City, Mo.

DETROIT.—Fancy white comb, 14@15; No. 1, 13@14; other grades, 10@12, with good demand; white extracted, 7@8; dark, 6. Beeswax, 23@25, with good supply. M. H. HUNT & SON,
Sept. 29. Bell Branch, Mich.

FOR SALE.—Fine basswood honey in 60-lb. cans, two in a case, 8½c net. Also basswood, clover, and fall flowers mixed, light amber, same price, f. o. b. Union Center, Wis. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—We have some nice basswood honey in kegs and cans at 8¾ cts. per lb. Sample 5 cts.
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FOR SALE.—Choice new light amber honey at $4.50 per can of 58 lbs., net. Samples postpaid, 10 cts.
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WANTED.—Comb and extracted honey. State price, kind, and quantity. BLAKE, SCOTT & LEE,
57 Chatham St., Boston, Mass.

WANTED.—Your honey. We will buy it, no matter where you are. Address, giving description and price.
THOS. C. STANLEY & SON, Fairfield, Ill.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
163 South Water St., Chicago, Ill.

WANTED.—Quantity lots of comb and extracted honey. Car lots preferred. B. WALKER, Evart, Mich.

WANTED.—Fancy white comb and extracted honey. Give price, kind, and quantity. C. H. W. WEBER,
Successor to Chas. F. Muth & Son and A. Muth,
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Address A. T. COOK, Seedsman, Hyde Park, N. Y.

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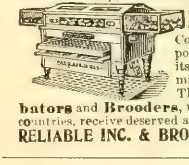

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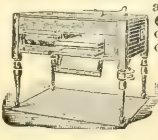

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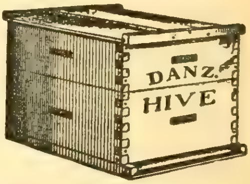

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Amber, in barrels.....8c; in kegs.....8½c.
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10 Vine Street, : Philadelphia, Pa.

Manager The A. I. Root Co.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

VOL. XXVII. OCT. 15, 1899. NO. 20.

STRAY STRAWS FROM DR C. C. MILLER

YES, I AGREE to keep mum if you'll get Doolittle to answer that question, p. 710—at least in print; but just wait till I catch him out alone, if his answer is too saucy.

"DO BEES sometimes stay out in the field all night?" is a question in *American Bee Journal*. Most of the 30 replying say yes, but there are a few doubting Thomases.

"IN 1897, when so many factories were running night and day, the season was almost a failure" (footnote, page 710). Don't you mean 1898? 1897 was a big year, in this region at least. [Let's see; yes—I guess you are right.—ED.]

IN MOST SECTIONS the space between separator and capping is ¼ inch; but in some cases it is $\frac{5}{16}$. That's only $\frac{1}{16}$ difference, but it looks a good deal more than $\frac{1}{16}$. [In a few instances bees build the combs to within $\frac{3}{16}$ of the separator; but generally speaking, ¼ is the general average.—ED.]

THOSE BE brave words, Brother A. I., that you say about humbug healers, p. 732. Now please print a plain paragraph about a good friend of mine who lately said some rather apologetic things about that arch operator, Dowie, who owns up to having got $1,000,000 for which he will account to no one but God.

IF YOU HAVEN'T a grapevine, "get right at it this fall and plant one," says A. I. Root, p. 731. Don't you tell him I said so; but if you live in Northern Illinois, wait till next spring to plant any vine or fruit-tree. [Personally I do not like grapevines in our apiary, and I do not know of any of our apiarists who do or did. If the trellis is large in size, and the hives four or five feet away from the vine, it may do.—ED.]

THE *Deutsche Ill. Bztg.* warns against buying sugar without knowing where it has been kept. A neighbor lost all his bees through feeding sugar that had been stored in a room with kerosene, turpentine, etc. [I should be inclined to believe the loss was not due to the kerosene or turpentine, but to some other cause. Why, to me it seems absurd to think that the mere odor of either could so affect sugar as to kill the bees fed on it.—ED.]

WILL OLD-STYLE sections be higher than the plain the coming season, or shall we be encouraged to hold on to the old style by having the inset and the extra lumber thrown in? [There will probably not be much difference in the price the coming season, although it is plain that, when plain sections come more into popular favor, they will have to be sold for less money. Our own books show that they are working that way.—ED.]

AN OBJECTION to sections as light as some are made is that one must be too careful in scraping not to break them. The thinness has been carried a little too far. Please thicken up a little. [If you mean the wood of the section is too light—that is, too thin—I would say that the probabilities are that the 9-to-inch width of section will be very soon superseded by those that are 8 to the inch. We are preparing to make our sections for another season all ⅛ inch thick.—ED.]

"THE SECTION that promises to be standard is 4¼ square by 1½, plain." That's what you thought a few months ago, Mr. Editor. Have later developments made you change that view? [I have not changed my opinion, doctor, unless it be that there is a possibility that the tall plain section will in time come to be the standard. But I am very well satisfied that the plain section, either square or tall, will in time supplant the section with insets.—ED.]

I DON'T SERIOUSLY object to your saying "squushed" instead of "squashed," Mr. Editor, if you prefer, but I do object to your dropping out the vowel, making it "squshed," as you have done at bottom of p. 724 and previously. I'll stand a good deal from you, but the line must be drawn somewhere. [Have it either way you want—with one *u* or two. Either way expresses my meaning. We used the word as a "colloquialism." We knew it should be spelled *skwusht*, all the time.—ED.]

It's a good plan, when you take a super of sections off a hive, to pencil on one of them the number of the colony. Then when you find a super of greasy-looking sections you know where to replace a queen next spring. [Good scheme! And while you are about it, it is a good point in favor of numbering hives.—Ed.]

The *Wuerzburger Praktischen Wegweiser* says the publisher of Gleanings has offered $25 apiece for *Apis dorsata* queens, and that a Hollander named Verholen tried with dogged persistence for years to domesticate dorsata in Java, but all in vain. Out of 87 colonies that he secured, not a single one but took French leave, deserting brood and honey. [I wish, doctor, you could get hold of the full report of these experiments. It will make very interesting reading, both to the dorsataites and to the antis.—Ed.]

Speaking of foreign bee journals, "Stenog" says, p. 712, "Every month has its detailed account of what to do and how to do it. In this regard they set a good pace for American journals." It would be an easy thing for Gleanings to occupy a page or two each month with such matter, and it could be kept standing in type with but little change from year to year; but I'm afraid readers, even beginners (if they have a good text-book) would object to space being taken up that way. That space is better taken up with answers to live questions from beginners and others, in which American journals set the pace.

Decidedly interesting are those figures that H. Lathrop gives on p. 719, and I think Harry means to give the unvarnished facts. Figuring on 15 years gives something like this :

3 years of failure	00
5 heavy crops of 100 each	500
7 medium crops of 50 "	350
Total per colony for 15 years	850
Average annual yield comb honey per colony	56⅔

The average beginner in the average locality, who figures upon that as a basis in deciding as to making bee-keeping his principal means of support, will be sadly misled. There are a few localities where in a full year 100 lbs. of comb honey per colony might be reached, but they are few. Some would do it with a few colonies, but not with 75 or 100. In most places there would be more than 3 years of failure in 15. Harry Lathrop may not know it, but I doubt that the average bee-keeper would do what he has done in that same locality. All the same, his contribution of facts is valuable.

I put 46 supers of unfinished sections in the shop cellar, piling them crosswise, and then opened the door about Oct. 1. The weather was fine, and it took the bees about two days to clean them. Combs gnawed a little, but not seriously. [This or a similar method is the only practical way of emptying out unfinished sections. They may be piled in stacked-up hives with a small entrance, or in a dark cellar, where it takes the bees a little time to find their way to the honey. If I am not mistaken, nearly all the largest comb-honey producers use either one or the other method; but you will remember that it was opposed pretty vigorously by some of the leading lights at Philadelphia, on the ground that it has a tendency to incite robbers, and that bees once robbers were always robbers. We have tried the plan here at the Home of the Honey-bees a good many times, and I do not see that bees are any the worse off when it is over with than when they begin. See article by Harry Howe in this issue.—Ed.]

"You can take partly filled sections and place them in the upper story of a colony; and the bees below, if you give them time enough, will empty them out and store in the brood-combs" (Gleanings, 724). For this "locality" that phrase, "if you give them time enough," should be strongly italicized, making the time generally not less than six months. I've had heaps and heaps of experience on that point, with large numbers of supers, extending over years, with all sorts of insinuating devices, and I must humbly confess that I think I never got a single super cleaned out when allowing only one colony access to it. If any one has succeeded, I'll be effusively thankful for the trick. [We have had bees empty out partly filled sections in the upper story; but it sometimes took two months, and that is the reason why I put in the qualifying clause, "if you give them time enough." Taking it all in all, the bee-keeper had better not fool away his time and that of the colony in any such way as this; better—far better—pile the sections up in the cellar and let all the bees rob them out slowly as you describe elsewhere in Straws.—Ed.]

J. H. H., Neb.—If the oil-stove was turned down too low it might possibly have been an indirect cause of the death of the bees. We would not advise putting a stove of that kind into a cellar and keeping it there more than two or three days at the most. You did right in dividing the bees as you describe. If one of the queens is a good one, save her and destroy the other. If neither one is to your liking, destroy both and introduce another ; but in the fall you must not expect very much egg-laying, for that generally stops along in August or September. The mere fact that eggs are not found in a hive at this time of the year is no indication that the queen is not doing as she ought. Yes, by all means use cushions with the double-walled chaff hives. Double hives would be of little use without cushions on top, for they are more important than the double walls of the hive. In putting bees up for winter I would not take away combs of honey, even though they are not covered with bees or contain no brood. If you have any fear about a queen not living through the winter because of old age, or because she is feeble, better replace her with a young laying queen. Yes, cushions should be at least six inches thick.

PICKINGS
FROM OUR NEIGHBOR'S FIELDS.
By "Stenog."

Naught remains of summer's wealth ;
Blasted stalks and withered flowers
Speak to us of life's best hours
That fled away by stealth.

* * *

As the report of the Philadelphia convention will appear in pamphlet form, besides being discussed in this journal, it has not been deemed best to make any condensation of it here.

AMERICAN BEE JOURNAL.

Mr. York says Charles Dadant is nearly 82 years old. Better than that. He'll be 83 next May, having been born May 22, 1817. May he stay 17 years more and make a century!

* * *

Mr. W. M. Whitney says he has noticed that bees do not disturb a skunk, while they will drive a white dirt-throwing rooster out of the yard. He concludes the bees tolerate the skunk on account of its quiet ways, and yet it eats bees as well as chickens do. I'd rather kick a rooster, I believe, than a skunk. A little honey loaded with strychnine, placed just under the surface of the ground in front of a hive, will deprive a well-bred skunk of his worst feature in a short time.

* * *

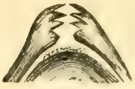
Mr. York is introducing pictures more and more into his excellent journal, and I commend him for it. On the first page of his issue for Oct. 5 is given a view of what I deem to be the prettiest bee-yard yet shown. It belongs to F. G. Herman, of New Jersey. It is a veritable little park, and Rambler's "muse" prompts one to say :

I'd like to be a honey-bee,
And fly around that park ;
I'd visit all the flowers bright,
And fill my combs by dark.

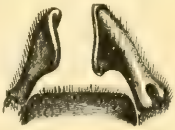
* * *

In regard to bees and grapes, Mr. C. P. Dadant says : "Another heavy grape crop is now on the vines in this vicinity, and yet we do not hear the usual complaint about bees eating grapes. It looks as if the uneducated grape-grower had at last come to the conclusion that the bee-keepers are right when they assert that bees can not puncture sound grapes. But such is surely not the case, and the silence of the grape-growers comes from the fact that no damage is being done this year, for the very simple reason that, in this vicinity at least, the weather has been so dry that the grapes are not bursting ; and although the honey crop is short in the uplands, the bees have no occasion to annoy the horticulturist, for there are no damaged grapes for them to work on."

In a discussion with an old Frenchman, the latter complained to Mr. Dadant for keeping so many bees as to destroy his grapes. He insisted that the bees made two small holes in the grape ; but Mr. Dadant showed him that it was a quail that had done the mischief. To show the folly of charging the bees with the mischief I give herewith, by courtesy of Mr. York, a cut showing the mandibles of a hornet and one those of a bee. While the former might be able to scrape a hole in a grape, it certainly is evident that a bee could not do so, as the mandibles would slip over it like a cow's lips over a pumpkin. Mr. Dadant says it will take years to eradicate the prejudice grape-growers have against bees. If the question can be settled, Mr. D. has done it here, as he and his father have raised grapes and bees together on a larger scale, perhaps, than any other persons in America. They have a vineyard of 13 acres, and about 90 colonies of bees on the same farm, but find "the bee is not the enemy of the horticulturist, but his friend." Mr. Dadant well says that it is just as necessary to teach these truths in our public schools as that the earth goes round the sun.



MANDIBLES OF HORNET.



MANDIBLES OF BEE.

PROGRESSIVE BEE-KEEPER.

I much regret that F. L. Thompson should construe what I said of him on p. 388, May 15, as derogatory when I meant it for the highest praise. In saying he holds in light esteem the rules of syntax, punctuation, etc., I meant that he has so good a natural taste as a writer that he can be safely trusted to be a law to himself, and that he does not have to hunt up a rule for all he writes. This is perfectly plain from my closing remark : "It is a fortunate thing for us that Mr. T. is well qualified to act as an independent worker." In spite of this and what I said of him on pages 80, 255, 567, he calls this "mud" and "taffy," intimating that I accuse him of being a poor scholar. He says, "*Whatever* implication it has is false, and the writer knows it." I am glad to have Mr. Thompson's authority for now believing that my good opinion of him was ill founded ; but I did *not* know it till just now.

FOREIGN JOURNALS.

It is a Bavarian maxim to plant a tree in every open space, and have an apiary near every house.

* * *

The *Rheinische Bienenzeitung* says the government of Holland has ordered a regular number of bees to its East India possessions to fertilize the coffee and cocoa. Honey flavored with coffee would certainly be fine.

* * *

Mr. Van Dieren, in *De Bieenvriend*, a Dutch journal, says moisture in hives can be obviated by placing in them two or three lumps of chloride of calcium. This has a great affinity for moisture, and should be renewed every two weeks. Do not mistake it for chloride of lime.

The republic of Chile is fast coming to the front as a honey-producing state. A German paper speaks of it as the California or Eldorado of bees. It enjoys a favored climate, greatly simplifying wintering. Bee-keepers in that country are ably represented by *El Apicultor Chileno* (*The Chilean Bee-keeper*), edited by Juan Dupont-Lafitte, a man who is fully abreast with all that is going on in beedom. Chile might be represented by a green ribbon an inch wide and a yard long, its real length being about 2600 miles. With the Andes Mountains on the east and ocean on the west it enjoys a fine climate for bees. Their summer is, of course, our winter.

* * *

Francis Joseph, Emperor of Austria, has an apiary in his private garden, not far from the windows of his palace, for convenience in observation. The government gives about $12,000 a year for the purpose of developing scientific apiculture. It is worthy of note on the part of the various European governments, that they favor in every way men of talent, rich or poor, not only in bee culture, but in all the arts and sciences. Even Russia, beginning with Peter the Great, has offered every inducement for artists and artisans to go there to live. The result is, that St. Petersburg is now probably the finest capital in Europe, while less than 200 years ago its site was a dreary bog. The king of Bavaria appropriates annually about $8000 to promote scientific bee-keeping.

* * *

A correspondent of the *Revue Eclectique*, in writing from Greece, gives the following :

"From the most remote antiquity, and even before all civilization, Greece was a country essentially honey-yielding ; and even down to our times the honey harvest in Hellenic countries has had a celebrity that no other rival product has been able to share ; for the abundance and especially the richness of the flora of certain localities favor in an especial manner this agricultural industry.

"Nevertheless, in spite of the exceptional situation of Greece it is to be noted that the honey production of that state does not exceed $200,000 in value, and this does not suffice for home consumption. On the other hand, the celebrated honey of Hymettus, once gathered on the mountain of that name, is produced no more. Grecian honey, the superiority of which is due essentially to its aroma, and to its fine flavor and nutritive properties, sells in Athens at from 37 to 45 cents a pound.

"There is also another kind of honey called *rodomeli*, or honey of roses. The colonies that produce this honey are situated in the province of Carystie, in the Eubœa — regions which are covered with wild roses, from which the bees gather honey.

"The honey produced by the juices of these plants exhales a perfume of roses that is very marked. It is sent principally to Constantinople, where it is sold at a very high price to Turkish families, who use it for cooking, and for seasoning their pastry. Wax is worth from 37 to 45 cents a pound."

THE AUSTRALASIAN BEE-KEEPER.

We have just received the second issue of this enterprising journal, published by Pender Bros., West Maitland, N. S. W. Bee-keepers there, it seems, are to have a little government help in selling honey. This is to be done through their Board of Exports. The assistance rendered by this Board must be of such a character that the honey on which a government brand is placed can be guaranteed as to purity and quality, and thus prevent any rubbish being sold as Australian honey. Mr. Pender gives an interesting account of his visit to this country a year ago. Wintering, as we have it in our Northern States, seems to cut no figure in that warm climate.

The editor says the discoloration of comb honey is due to light. He had some stored for three years that remained as white as ever except where the light struck it. But if that is true, why is wax exposed to the sunlight in order to bleach it, as it always does?

GENERAL CORRESPONDENCE

DISEASED BROOD IN THE STATE OF NEW YORK.

Pickled and Foul Brood, and Where Scattered ; Tall Sections ; When and by Whom They Originated ; the No-drip Shipping-case.

BY CAPT. J. E. HETHERINGTON.

Mr. E. R. Root:—In reply to your letter requesting information in regard to foul brood in our State, also tall sections and no-drip shipping-cases, and the length of time I have used them in my business, I will reply by saying it is indeed true that the bee-keepers of this section of our State have been greatly agitated for the past three years over the appearance of foul brood, pickled brood, or whatever it may prove to be.

I learn from Mr. N. D. West, who has been recently appointed foul-brood inspector for our State, that it first made its appearance at or near Sloansville, in nuclei swarms bought in the South; and with Schoharie County as a center it has spread quite rapidly, and become a very serious problem, presenting in some localities a more serious aspect than in others. On the surface of things, from facts presented, one might almost conclude three or more diseases existed in the same locality.

My first personal experience was last July on my return from the South. All I have seen up to this time is clearly indicated and described by Dr. W. O. Howard, of Texas, and Mr. N. E. France, foul-brood inspector for Wisconsin, as pickled brood.

During my early bee keeping experience, when "Father Quinby" was at the helm, we had the scourge foul brood, and I am satisfied that what we now have has none of the marked characteristics of that disease.

Mr. N. D. West, who is about 35 miles east of me, says he certainly has in his locality unmistakable foul brood, while Mr. C. H. Ferris, a bee-keeper of 25 years' experience, and inventor of the steam wax-extractor, living about the same distance west (one of the afflicted), says he has not seen a cell of foul brood; that it is clearly pickled brood, and calls it a poverty disease, and cites the 85-colony apiary of Mr. W. L. Smith, an old-time bee-keeper, which he examined last spring, and found all the colonies badly affected, on recent examination not a trace of it could be found; claims it can not be foul brood, as that trouble always goes from bad to worse. We have many good practical men who are firm in the belief that the trouble is pickled brood and nothing else.

CAPT. J. E. HETHERINGTON, THE MOST EXTENSIVE BEE-KEEPER IN THE WORLD.
See Editorials.

As to my use of tall 4x5x1⅝ sections, I experimented with them in 1885 and '86. The next year, 1887, I changed one-third of my business to them. The following season I changed my entire outfit. I have always advocated their use, my argument being that, from infancy, our eyes have been trained to that form, and it is, therefore, more pleasing. Doors, windows, books, letters, and the like are in that form. It is seldom an artist makes a square picture—(4¼x4¼)—generally rectangular in form. I have no knowledge of their prior use, and think they will increase in popularity.

As to no-drip shipping-cases, I asked one of my men this morning how long I had used them. He said he began work for me in 1887, and had never seen any other kind used.

I place a sheet of manilla paper on the bottom of the case, and tack across this paper, at right intervals, thin strips of wood ⅛ inch thick by about ⅞ inch wide. The sections rest on these strips at the corners, which raises them ⅛ inch above the paper which holds all drip; these slats are sawed from edgings and waste lumber, and cost next to nothing. The paper costs six cents a hundred sheets cut exact size.

For years I have made a practice of covering my honey with a sheet of cotton cloth while in transit. This sheet is billed with the honey, and returned to me for future use. This covering protects the cases from cinders and dust which enter the car while in motion, and insures a case at its destination clean and neat in appearance instead of one begrimed with dirt, the no-drip case contributing to this end.

If the journals would keep before their readers the necessity and advantages of sections well cleaned and assorted, sending nothing to market but such as will be pleasing and satisfactory to the consumer, and packed in a neat well-made case, kept neat and clean by no-drip cases and cloth cover, so that our goods shall be regarded as desirable to handle by the trade, a matter clearly in the interest of all producers, they will be conferring a great benefit to our industry.

Cherry Valley, N. Y., Sept. 11.

[I would explain that this article is the result of a series of letters that have passed between Capt. Hetherington and myself. I had heard that a sort of diseased brood was making rapid headway in certain sections of New York ; and in order to get reliable information I wrote to a number of the prominent bee-keepers, including Capt. Hetherington, and of the latter I also asked if it were not true that he was the originator of the tall sections and no-drip shipping-cases. The article above is in reply.

That foul brood has got a start in some portions of the State of New York there can be no doubt, as Harry Howe, bacteriologist for a time at the Cornell University, after examining specimens, pronounces them genuine cases of foul brood—*Bacillus alvei*. Most of the others he says are of a milder form—perhaps pickled brood, but a different form of germ life, and probably not the same disease. It is this latter that seems to have visited certain localities in the State, and which has disappeared ; for, as nearly as I can ascertain from others in these places, this new diseased brood, while similar to foul brood, lacks two or three of the important symptoms ; namely, the glue-pot odor, the peculiar ropiness, and generally the characteristic color. The odor, when noticeable, has something of a sour, yeasty, fermented smell.

This peculiar disease (pickled brood we will call it) will go through an apiary and then disappear of itself, even when no treatment is administered. It seems to be somewhat contagious ; but, like influenza and other maladies of a like character, it leaves the patient (the bees) somewhat the worse for wear.

I have procured a sample of this brood and forwarded it to Dr. Howard, the author of a work on this subject, and a bacteriologist, at Fort Worth, Texas. From the preliminary examination he was able to make, he did not call it foul brood, nor did he think it was the pickled brood he had described in his book ; but I am expecting a report from him soon, when he will tell us more of its real character.

I have had some little correspondence also with Mr. Benton in reference to getting government aid in the investigation of this new malady, and it is no little pleasure now to report that the Department of Entomology is preparing to investigate this disease, and has asked for samples of pickled brood or other diseased forms for the purpose of examination. Mr. Benton belongs to the Department of Entomology, and will have a good deal to do with the matter. That he has interested the powers that be, in this matter, at all, is a matter of congratulation; and we now feel that this disease which has been cropping out here and there all over the United States will at least be thoroughly studied, and, if possible, its cause and cure known.

Of the captain's connection with tall sections and no drip shipping-cases I shall have something to say editorially elsewhere.—Ed.]

* * *

THE SEASON IN CALIFORNIA.

Scarcity of Honey; Alfalfa a Future Honey-plant; Shade for Bees; Spiders and Ants as Moth-destroyers; Loss by Fire; an Interesting Article.

BY R. WILKIN.

In 1898 my 600 hives of bees, after my spending $400 or more on feed for them, were, like others in the country around me, reduced in numbers nearly a half, being in the dry mountain region of Newhall, Los Angeles Co., Cal. The remaining hives were exceedingly poor and weak. In March, 1899, many of our bee-keepers being confronted with the practical certainty of a worse season than the previous one, moved to wet or irrigated lands to save their bees. I took my 340 two-story hives of bees, and nearly as many with empty combs, and the outfit for a home and apiaries (two carloads), to the alfalfa-fields of Famoso, Kern Co., where the snows on the Sierra Nevada Mountains usually furnish water sufficient to water the great San Joaquin Valley. But the snow was lighter than usual, and the unusually cold season prevented its flow of water until in June, so there was a meager growth of alfalfa and a corresponding amount of honey produced.

I closed the season with 325 hives of bees and 2½ tons of choice extracted honey which I sold there f o.b. at 6½ cts. But I tried three days later to buy 15 tons of water-white honey at 7 cts. to fill an order from an Eastern firm, but I could not get it to suit.

This year the producer takes part in dictating terms of sale, so his whole crop has to go together, light and amber. I notice the honey does not have to be so light-colored this season to pass for "water-white" as it usually does.

The yield of honey in the hundreds of miles of the San Joaquin Valley varied from nothing at all to 100 lbs. or more to the hive. At Los Banos, 150 miles north of me, L. E. Mercer, with his 700 hives, and others, seemed to fare about as I did. About Bakersfield, 25 miles south, where water is more abundant, and malaria more common, the flow of honey is much more abundant this season. I preferred to dodge malaria and take my chances on less honey.

My stay in the valley impressed me strongly with the fact that alfalfa, yielding such an extraordinary amount of food for animals, will, in the near future, be cultivated wherever conditions favor its growth, which will surely be followed by the bee-keeper to secure its wonderful yields of honey, which, if not the most popular, is a very fine honey. I expect hereafter to hear of bee-keepers crowding each other in the alfalfa-fields, which are only beginning to be fully appreciated.

The heat in the San Joaquin Valley runs high, so that bee-keepers usually place their hives in rows five or six feet apart, facing away from each other, leaving hives only ten or fifteen inches apart in the rows. The bee-keeper works in the street between the rows, causing much loss of queens returning from their fertilizing-trips. A shed 10 or 12 feet wide, of boards, brush, or straw, supported on posts 7 feet high, covers these two rows and the street between them, making a very pleasant place to work in hot weather. Occasionally these covers catch fire. The result is, the apiary is burned. I used the precaution to cover mine with "Cabott W." muslin supported on wire. Drill or duck would be more serviceable, being easily removed when the hot weather is over.

I kept a hive on scales all the season, and observed that, when the thermometer rose from 80 to 100°, bees collected most honey; above that, the amount diminished, so that at 110 to 116° almost nothing was gained, and in some cases the sealed brood was killed, remaining in the cells the rest of the season, seriously damaging the hives. Younger brood may have been killed and cleaned out without my noticing it. Heavy combs of honey in hives without bees, but in the shade, began to melt down.

Spiders and ants are serviceable in hives of combs without bees on them. For three months I did not find a living worm on my thousands of empty combs, in the hottest of the season. Wherever the moths would start, the ants seemed to be present to eat them. Query: Is it practical to cultivate ants to suppress the moth? I know that many would like to suppress the ants.

I made one quite objectionable blunder this season. I have concluded that, when I have to live alone or in the mountains with my bees, as so many California bee-keepers do, I shall make my surroundings as comfortable as possible. I accordingly built myself the neatest and most comfortable bee-house I have seen in California. It has a web of wire cloth, face high, all around it, for ventilation, with awning outside to raise or shut down over it according to the weather, and then collected and arranged around me every thing I needed. I used a kerosene-oil stove to heat the water for my knives when uncapping. As the flame of such stoves creeps higher as they warm up after being lighted I was always careful to turn the flame down well before going out for a load of honey, except the last time. When I looked back to the house the flame was to my bed up stairs. All I could save was my trunk and bicycle. It went rather awkward to be without a coat or a bed—nothing to eat or cook, nor to eat it with if you had it. My clock, choice books, account-book, notes, pocket-book, money, and keepsakes are all gone. My extracting-outfit, including your Cowan extractor, and many tools, all yielded to the flames, for my season's beeswax helped to make a flame that the neighbors said rose 200 feet high. One-third of the cloth covers of my hives were burned off without setting fire to my hives. Had I saturated my muslin with a solution of borax and sal ammoniac, as I had contemplated doing, I presume it would have been but little damaged. Oil-stoves are so handy I wish they would never go wrong.

If you have any dodecahedron paper-weights I wish you would send me one, as the one you sent me as a souvenir for being an everlasting subscriber to GLEANINGS was badly damaged.

Ventura, Cal., Sept. 24.

DR. MILLER'S SPLINTS FOR STAYING UP FOUNDATION.

Patent Medicines.

BY B. F. AVERILL.

I wish I could correct Dr. Miller's plan of setting foundation with sticks. Those who try it according to explanations on page 314 will certainly have a troublesome task. His sticks are too small. The proper size should be $\frac{3}{32}$ × 1/8, and 1/4 inch longer than the space between top and bottom bars, which should be grooved to receive ends of splints. The splints need not be waxed. Eggs are laid and bees are hatched and matured on the wood just as well as in any of the other cells. His method is too complicated. I just put 4 of the sticks in a frame, lay on the foundation, turn over the frame after the last three sticks are *sprung* in and rolled down, and roll down the *first four*. This completes the work ready for the bees to build out their combs. If the foundation touches the top-bar there will be no sagging or bulging of combs. Five sticks are not sufficient. It requires 7, and *larger* sticks than $\frac{1}{16}$ square. There is no trouble about bees eating down the sticks at the bottom unless they are unsound. A very slender or fragile stick might be gnawed away at the bottom; but one or two missing sticks after the combs are drawn out are immaterial. The combs will be stronger than in wired frames.

The remedies ——— advertised, so far as I have tried them, are very good, and no doubt their specifics are brought to the service of thousands who would use no other appropriate remedies for the restoration of various bodily functions. Their formulas are free to any practicing physician who may apply to them, with stamps to cover postage. Several of Dr. ———'s compounds are extensively used by the medical fraternity. Not everybody can follow a course of dietary self-treatment, as yourself and I have been accustomed to do. Not everybody employs a physician for incipient disease. A great many trust to the use of standard specifics that can be purchased for half what a physician would charge for prescribing. Many patent medicines are doing a great deal of good, else their manufacture would not be sustained by public demand. This, however, is only my opinion.

Howardsville, Va., April 22.

[Dr. Miller replies:]

The plan of using foundation-splints is one with regard to which I had no precedent, having never heard of any one else having tried it till after I had. It is, of course, by no means certain that my plans may not be improved, and I wish Mr. Averill had been a little more explicit. He says my sticks are too small, but does not say why it would be better to have them larger; neither does he say why seven sticks would be better than five or better than eight. He uses more than four times as much lumber as I do in the sticks of each frame. Without seeing any special reason for the larger sticks, I should have supposed that, if they would only accomplish the purpose, the smaller the better. Certainly it does not seem that larger sticks or more of them can be needed for strength, for the five small sticks I use hold the foundation so there is no hint at sagging or getting out of place. It seems to me that larger sticks would make the comb a little ridgy, which is objectionable.

He says the sticks need not be waxed; but until I waxed them the bees tore them down, and I'm sorry to say that they still do so occasionally, if but little honey is coming when the foundation is given. It looks a little as if the bees gnawed down some of his sticks, for he says one or two missing sticks after the combs are drawn out are immaterial. But I find that, when they gnaw away the sticks, they are inclined to gnaw away the foundation too.

I wish he would tell us what kind of wood he uses, also what proportion of the comb is built down solid to the bottom-bar so that no passageway is between the comb and the bottom-bar. If his way will make just as good work as mine, I think it is less trouble; and as some are inquiring about the matter it is worth while to know all about it.

Perhaps I may be pardoned for saying a word about patent medicines. Mr. Averill mentions their being used by the medical fraternity. If a physician knows the articles therein contained, there is no reason he should not use the compound. But does Mr. Averill know of a reputable physician using a patent medicine indiscriminately for all the various ills it is recommended to heal? Take any one of the best articles in the *materia medica* that are used with best results by the profession, and put it in the hands of one who thinks himself ailing, and who believes that the said medicine is such a cure-all as patent medicines are in general represented to be, and the results would be mischievous.

The large amount of medicines taken without any intelligent notion as to their action may be credited with much of the poor health that prevails, and such medicines are usually taken in some one of the proprietary forms.

"Not every one employs a physician for incipient disease. A great many trust to the use of standard specifics," is a statement that is, alas! only too true. They might be better off to let both physician and specific alone than to swallow ignorantly the so-called standard specifics in such quantities. It is not necessarily an argument in their favor to say that such medicines can be bought "for one-half what a physician would charge for prescribing." If you save the money you would pay to an intelligent physician, and spend only half of it for patent medicine, and lose your life thereby, you're not much the richer for it. That vast amounts are paid yearly for patent medicines must be easily believed by any one who knows what thousands upon thousands of dollars are spent in advertising them.

"Many patent medicines are doing a great deal of good, else their manufacture would not be sustained by public demand." If that sort of logic is correct, then it is also true that alcoholic liquors are doing a great deal of good, else their manufacture would not be sustained by public demand!

Marengo, Ill. C. C. MILLER.

* * *

HONEY IN 4¼x4¼ SECTIONS THE ONLY SIZE.

The 4×5 vs. Square Sections; Manufacturers who have an Ax to Grind.

BY E. D. OCHSNER.

As a producer of comb honey I wish to defend myself and brother bee-keepers against such men as Mr. Percy Orton and Mr. Massie for the part they have both taken in running down the only good section we have on the market, and as good as we ever shall have. Now, I wish to answer Mr. Orton in his article on page 679, where he went a little too far when he said the 4¼×4¼ sections should be taken to some swamp and stamped out of sight in the mud; also that the 4¼×4¼ section looks like a squatty old woman. He must remember that squatty old women are just as good as tall American ladies, and Mr. Orton ought to be ashamed to speak in that way of the fair sex, and that does not have any thing to do with sections.

Now, I can show just as fine 4¼×4¼ sections as Mr. Orton can with his 4×5, and will compete with his any day that he wishes to name; and I can sell mine in the same market with the 4×5, and at the same price; also can raise just as much honey to the colony. The American people will naturally buy something new just because it is a different style, and they like to be humbugged. Now, this custom of introducing new styles of hives and sections every year is a nuisance to the bee-keepers at large, and should in some way be stopped, for they will never take the place of such hives as the Langstroth and other leading hives in use, or the 4¼×4¼, 2, 1$\frac{15}{16}$, or 1⅞ sections.

To show how many 4¼×4¼ sections are in use I will say that The G. B Lewis Co., of Watertown, Wis., has sold about 10,000,000 to 25,000 of the 4×5, and they consider the 4¼ undoubtedly the better section. Now, just think of the waste there would be with such bee-keepers as father and myself, with about 300 colonies run for comb honey, to discard old supers for new ones. You are doing an injury to your brother bee-keepers, instead of good If Mr. Massie thinks the fence separators such a fine thing with his 4×5, he doesn't know what a good thing is. The fences are the poorest separators on the market, and that helps to knock out the 4×5 section. I have tried almost all, and long enough. The 4¼, raised with a plain tin separator, will weigh a little less than a pound, which most retailers like; and a square chunk of honey looks, if any thing, better than the 4×5 on the table.

I have been an exhibitor at the Wisconsin State Fair for the last five years, and have taken almost all of the premiums, and never heard of any preference for the new style of sections, or fault with the 4¼×4¼. I think I have sold and shown my honey to more people than Mr. Massie. He might fool customers of his, but I can't mine. I have tried quite a number of hives and sections, but never found any thing as simple and profitable as the Langstroth hive and the T super with follower and wedge holding 24 4¼×4¼ sections. There are too many trying to make money out of their new hives and sections.

Prairie du Sac, Wis.

[Why, Mr. O., you are speaking for yourself. This United States of ours is too large to have any controversy or ill feeling over a matter of this kind. Before you judge your opponent too harshly, I suggest that you take a trip east and look over the market there — particularly those of Albany and New York.

You might just as well say that everybody should be Methodists, Baptists, or Congregationalists. There are some people who wear Congress gaiters, and yet I suspect a great majority will wear nothing but laced shoes. It would be folly if those on one side should say that laced shoes should be thrown into the mud and left there, simply because Congress gaiters can be put on more easily and in less time. Then, again, some farmers prefer narrow wagon-tires while others use those that are four or five inches wide, and there is another large class who, like yourself, are making a great outcry against them.

If some of the arguments on either side were to be carried out, the result would be absurdity. The simple fact is, we can not all be brought to one idea or pattern. It in no way conflicts with your interests if Mr. Massie or Mr. Orton prefers 4×5 sections. Your preference for the 4¼ can not in any way affect their pocketbook.

This world should be broad enough and liberal enough to allow each one to wear whatever kind of shoe he pleases, or any particular hat that suits his fancy, or to use the hive, section, or frame he likes best.

To a "man up a tree" it might look as if what has been said in GLEANINGS in favor of plain sections, fences, and tall sections, was put in solely to grind a certain ax, the property of The A. I. Root Co.; and knowing people as I do, and judging other people as I am afraid I do, I do not blame you or any one else for taking this view of the matter; but if you will come to our place and then take a trip east with me, I think I can show you that dollars and cents, in the case of The A. I. Root Co., *was not* the motive for putting out these sections.

While The G. B. Lewis Co. may not have sold more than 25,000 tall sections out of 10,000,000, our proportion (and you know we are nearer the eastern market) runs about 1,000,000 for every 10,000,000 of the 4¼ sections. The simple fact is, we could make more money, and so would all manfactures, if all bee-keepers would stick to one style of section; but *if* another kind for some people and some portions of our country is better, should we not give it to them?—ED.]

THE DAISY FOUNDATION-FASTENER.

Its Merits and Demerits.

BY F. GREINER.

I have received several letters this spring, asking my opinion regarding the Daisy foundation-fastener. These letters came from parties largely engaged in the production of comb honey. It seems, then, that the little machine is not fully known among the bee-keeping friends, and it may serve a good purpose to bring it before the readers again and discuss its merits and perhaps its demerits also.

In the years gone by I have purchased several foundation-fasteners only to discard them after a brief trial, falling back on the melted-resin process, although I have always considered the resin objectionable. My own experience with the Daisy has not been a very extended one; but I am happy to say I can report success. The machine does quick work, and does it very neatly. I have spent a good deal of time fastening foundation into sections by the use of wax or resin—time that was very valuable to me. I did not feel as though I could trust an inexperienced hand with this kind of work, for it has to be done just right. The Daisy may be operated by a child, and still every starter will be exactly in the right place. In fact, since I have had the Daisy I have put in scarcely any starters myself. My girl, eight years old, thinks it is just fun to work with it, and she does the work well. I can, therefore, recommend the Daisy fastener to all.

When I was using the resin method I would first fill all my wide frames (which I use almost exclusively) with sections, four of them for each frame. In this way I was enabled to handle the sections by fours when providing them with starters, and I thought this to be an advantage; but I may not think so when I get fully accustomed to the use of the Daisy.

When we are at work now filling supers we first make up the sections. A large light crate, 2½ feet by 4½, and 2½ feet high, holds just 1000. The two slats next to the top of the crate on each end are so arranged that they may be easily removed, and they are removed when the crate is getting empty. We can then reach the last section in the crate conveniently. We prefer to have the crate containing the sections at our left, the tray with the foundation starters at our right, on a box just high enough to work handily. The one operating the machine occupies a seat nearer the left of the long work-bench: the one filling the supers works nearer the right. We then work together. As fast as the sections are provided with the starters they are taken by the other. The wide frames are filled and put back into the supers, and wedged up. When one alone has to do all the work we place the sections, when ready, on little boards, pieces we happen to have, 8×18 inches; and by placing two of the sections side by side, and two high, each little board holds nearly fifty sections. They may then be piled up quite high, and a good many may be thus stored in comparatively little space till we are ready to fill the supers.

So far so good. Now something about the demerits. Before I had used the machine at all I noticed that no provision had been made to catch any dripping wax, or keep it from running into the lamp. It is not very much wax that melts off from a little piece of foundation; but when we work right along there will be quite a little drip, and it is annoying to have it run on to the lamp. I therefore took out the screws that hold the iron plate, slipped under a piece of tin 3½×8 in., turned up ¾ inch at the rear, letting it project over and protect the lamp. Holes were punched through the tin, and the two screws put back in their places. I now thought I had it; but, far from it. The hot accumulating wax followed down the screws—enough of it to keep constantly soiling the chimney and lamp. I finally succeeded in stopping this leak, but not without considerable trouble. I had to go to the blacksmith's. There I heated the ears of the plate to a cherry red; and with a center-punch-shaped tool driving it lightly into the screw-holes I formed two little cones with the screw-holes in the top, or apex. When the screws were inserted and screwed down they were then sitting on the tops of the cones, and about $\frac{3}{16}$ inch above the level of the plate. This arrangement prevented the wax from following the screw. Somehow some wax would then find its way in between the plate and the tin shield, so I treated the latter in a similar way. Of course, I did not have to heat the tin. Now the machine works satisfactorily.

It might be well to mention another feature of the Daisy, that was not to my liking. Judging from the pictures we see of it, and also from the description and the wording in the price list, we are led to believe that we might easily find a lamp to fit it as the Daisy is sent out; and so we buy the machine without the lamp, especially if we should have several lamps on hand bought previously with other foundation-fasteners. But when the machine comes to hand we find it requires a lamp but about 7 inches high, which is about the height of the ordinary pearl-top chimney. A lamp of this description I was unable to find, although I searched the stores of several towns. I was obliged to lower the lamp-shelf some three or four inches, which would have been a much easier matter had the board the shelf is attached to not been scalloped out at the point where I now had to place the shelf. Had the board been left the same size all the way down it would have given an opportunity to put in the screws for holding the shelf. As it was, I had to get along the best way I could.

I offer the above suggestions to the bee-keepers as well as to the manufacturers, for the latter are probably as anxious to furnish a perfect machine as the former are to receive it.

Naples, N. Y., May 22.

[For some little time we have had in mind making certain changes in the Daisy foundation-fastener; and those changes, when they are made, will eliminate the objections you have made. The plate will be made thicker, and so constructed as to carry away the drip of the wax back into a little can by the side of the lamp, thus protecting the latter from the unsightly daubing of wax.

We are always glad to get criticisms of this kind, because the combined result of them will be the perfection of each article in the bee-keeping-supply line. The Cowan extractor, for instance, has been put into the hands of practical extracted-honey producers, with a request that they criticise, which they did; and where it was practicable from a mechanical standpoint certain changes were made, so the Cowan now represents the best honey-extractor *we* know how to build. In the same way we are glad to receive suggestions in regard to smokers, hives, and other articles that we manufacture. Kind criticisms we consider a friendly act, and no one should hesitate to point out defects for fear we will not take it in the spirit in which it is given.—Ed.]

THE CRANE SMOKER.

How it Might be Improved: How to Produce Fat Sections; Value of Slats in Separators or Fences.

BY JOHN S. CALLBREATH.

Mr. E. R. Root:—On page 171 Mr. Crane, in answer to your question about the Crane smoker, says that "the jacket broke away from the rivets." It did the same on the one I had. Allow me to suggest that, if you would put an asbestos washer between the fire-cup and the jacket (shield), and a steel washer on the outside of the shield for each rivet, the defect would be remedied. Another weak point is in the neck of the nozzle. A year ago this spring, when you were three weeks behind on your orders, the joint of the nozzle gave out completely. I had one made at the tinsmith's — using the old hinge — and having the neck *braced* with a piece of galvanized iron on the inner angle of the nozzle. The iron (or steel it is really—after being folded double is about ⅜ inch wide and 2½ long. It is riveted on. When I wish to open the smoker I hit the nozzle a bat with my scraper, striking on the brace, and open it flies. No chance for argument about it.

As to that engraving on page 363, borrowed from the *Canadian Bee Journal*, you say: "This honey was produced, if I mistake not, in one-piece sections; but instead of having ordinary beeways the openings extend clear to the sides, the same as in the four-piece section." I have used just such sections for the past 12 years, and have wondered again and again why any one should want to use sections with the curved insets, especially when using section-holders. They do not allow so free a circulation of air; and as the bees deposit more propolis on them than on the sections with *full* openings, top and bottom, they are harder to clean.

To return to the engraving: If I mistake not, those eight sections were produced with *cleated* separators. In 1893 I began using cleated separators. In 1894 I used several hundred of them, and fondly imagined I was the only one who knew about such an effective device for getting the bees to fill the sections so that they would look plump — "fat," as some of my customers used to say. In the fall of 1895 I sent you a super containing sections ($1\frac{9}{16}$ wide) with full openings, separators with cleats (⅛ inch), and a wedge-shaped follower with a bee-space on all four edges, not to mention other features. I have produced a good deal of honey that would compare favorably with samples given of honey produced in *plain* sections, and the sections had the regular beeway, or, to be more exact, a *half* bee-space.

Mr. B. Taylor's article on separators, p. 210 of GLEANINGS, 1895, makes that point clear, and is well worth re-reading. To my mind there are five essentials to the *practical* production of honey that is well fastened to the *sides* and has a plump look: 1. Strong colonies; 2. A good honey-flow; 3. Not too much surplus room; 4. Full sheets of foundation; 5. Cleated separators. Combs well fastened and well filled at the edges *can* be produced from starters, but I do not deem it practical. Combs can be produced that look plump without *any* separators; but I do not think that practical either. In a *moderate* honey-flow, if the bees are forced to fill about all the cells next to the wood by being crowded for room I think there is a loss. That is, where a little extra honey is put around the edges, much more would have been stored if sufficient room had been given.

If, in narrowing down the 1⅞ section, you had gone further and narrowed down the tops and bottoms as well, "clear to the sides," there would have been some additional advantages about it: 1. The sections would look still plumper than they do; 2. You could get them out of the cases without using a strip of veneer; 3. By narrowing the bottom-bars of the section-holders to correspond with the sections, and extending the separators down even with the lower side of the bottom-bars, those "inviting spaces" for the storing of comb and honey (which Mr. S. T. Pettit warns you against, p. 95), would be broken up; 4. When a case is open for inspection, the honey projecting beyond the edges of the top of the section presents an appearance of lusciousness that is entirely lost with the plain section.

Rock Rift, N. Y.

[It might be impracticable to use two washers to secure the jacket or shield to the Crane fire-cup; at any rate, we will try it on the next batch of smokers. As to the weak point in the neck of the nozzle, that can be remedied by using a heavier tin, which we have used of late.

No doubt you sent us honey made with slatted separators away back in 1895, but I do not now recall it, except that in a general way we have received quite a number of slatted separators and fences from different ones, for a period of at least five or six years back; but until I went to the apiary of the late Miles Morton, and looked over some of his appliances, especially some of his fences, I did not really grasp the value of that device.

As I have said several times before, just as pretty and as nice honey can be produced in beeway sections as in plain sections; but those old-style sections must be modified in the matter of the beeways. Those with the curved insets can hardly, from the nature of the case, be filled as nicely as those having a beeway clear across and partly up and down on each side. With such sections and slatted separators the filling must necessarily be just the same as the filling in plain sections with the fences. But put the two side by side, and the latter will look fatter and better filled, because the projecting sides in the former tend to make the honey stand back in such a way that the box seems not quite so full, so that it is really a matter of appearance and not of reality.

We have letters on file from a number of the principal commission firms, speaking in high praise of the plain section. That it looks well, and is usually the kind that is sold first, and in some cases, at least, brings a higher price, is claimed by them. But somehow I dislike to speak of these things, because it looks as if they were said for the sole purpose of grinding that old ax. But shall facts be concealed that stand a chance of putting money into the pockets of bee-keepers?

Since basswood timber, like all other timber, is advancing so sharply—nearly a third—it begins to looks as if there ought to be a difference in price between plain sections and the old-style with beeways; for the latter, taking more timber, and more labor to make, of necessity cost more. If in the future the plain sections shall be cheaper, and under like conditions will appear to be better filled ,then he who consults his purse will not hesitate as to which style to select.

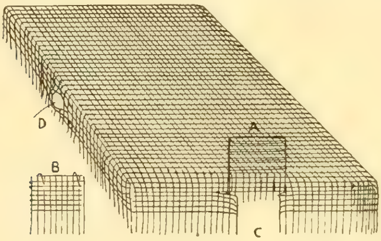
But narrowing the top and bottom bars of plain sections, as you suggest, would be a step backward. While it might make the sections look a little plumper, as you say, it would be almost impossible to handle them, for sections are ordinarily handled by the top part; and if that is so narrow as to be even with the face of the honey, the thumb and finger would be almost sure to gouge into it in handling. At one time we thought it necessary to use veneer strips to separate plain sections in the shipping-cases; but we now find that is not necessary.—ED.]

NORTON'S IMPROVED INTRODUCING-CAGE.

How to Construct, etc.

BY A. NORTON.

Friend Root:—Referring to an article on introducing queens, by W. Z. Hutchinson, in *American Bee Journal*, with illustration of cage for confining a queen against the comb, and his references to similar matter in GLEANINGS, whence he borrowed the illustration, I wish to send you an illustration of the way I prefer to make these cages. Mr. Hutchinson lets the queen in by raising the cage slightly and putting the shipping-cage under it, and letting the queen into it, after which he withdraws the shipping-cage and presses the other down into the comb. I once ruined a queen in that way because she was too lively, and she crawled under the sharp wires and was pierced by them. Again, I have lost queens by the sudden removal of the cage when I thought accepting time had come, the queen being scared, and the bees irritated by the jar of taking the cage out of the comb. I did not like to mutilate the combs by cutting an exit. I have been very successful with the modification I send you.



I make a little hole in the cage at the outset. In the diagram sent you I put two forms in the same illustration, to save space, only one being needed. I pierce a hole with a leadpencil, or any similar kind of punch, as at *d*. I then make a little gate of wire cloth, *b*, which is unraveled at the bottom, clinched at the sides by bending back the wires and at top the same, saving two or three of the projecting wires, which I bend partly down forming hooks. The bottom presses into the comb, and the hooks at the top catch into the wire cage so as to hold the gate secure. *A c* shows a square place cut from the cage instead of the hole *b*.

With the cage well set into the comb, and no bees inside, I hold the shipping-cage down with the little entrance open, the cork being removed, so that a nice passageway into the introducing-cage exists, and with a slight puffing of smoke I drive the queen alone, or queen and bees, into the latter. I then put on the gate over the hole, and all is secure, with no risk of injury to the queen. When I am ready I can remove the gate (that is to say, when the bees will accept the queen), and replace the frame, leaving the queen to get out quietly. I like the hole and gate *d*, *a*, better than the others, *a*, *c*, which I have tried as well.

If desired, one can insert a tinfoil or paper roll of queen-candy at *d* for the bees to eat their way into the cage in a given time, the roll being outside the cage. However, I have been very successful without this. I have had uniform success with this form of the cage, though I do not introduce queens by any one method entirely. I have recently had them safely accepted within 12 to 18 hours after putting them in from the shipping-cage in three instances, although no honey was coming in. It is well to have the abdicating queen caged in the same cage and place a while first. But it is not safe, generally, to try to do the work so soon. If one prefers the square cut as at *c*, the gate may be either slipped in through slits, as illustrated, or go on over with hooks, as at *b*, *d*. These cages may be laid away for future occasions.

Monterey, Cal., Aug. 1.

SMALL VS. LARGE HIVES FOR COMB HONEY.

BY D. N. RITCHEY.

As I take up the subject of small hives I wish to correct the editor in thinking that I have not tried large hives. I have tried hives holding from 3 to 14 frames, side by side, year after year, and now I will give you a short history of my life in bee adventures and experiences, which will give good reasons why I advocate the small hive for comb honey.

I have loved the bee from my childhood to the present hour, and expect to do so until Mr. Dadant and I meet in that land where the sun never sets, and where the only nectar-gatherers will be—*Apis dorsata*, if you please.

The summer I was twelve years old my father promised me the next swarm if I would find a hive to put them in. Of course, I agreed to do that. My father and grandfather were bee-keepers. My grandfather would take me on his knee, and say to father, "This boy will make a bee-man some day." I went to a carpenter and told him what I wanted. He said he would make me a hive, and asked what kind I wanted. I told him I wanted a hive that did not take so much honey to fill the lower part, so the bees could put honey in the boxes above sooner.

"All right," said the carpenter; "I will make just the kind that will suit you." So he made me a hive about 12×11×10 in. deep; and in the early part of June my sister and I, while hoeing sugar-cane, caught a swarm coming out of the woods, and placed them in the new hive. Now for a point. This swarm filled the brood-chamber and gave me 50 lbs. of surplus, while my father's bees, on the same platform, gave not a pound. They were in hives more than twice as large as mine. Year after year we had the same experience.

Again, there lives a man, a bee-keeper, near Hanover, who has his bees in boxes that will hold about eight or ten bushels, and they swarm, and give surplus honey only once in five or six years. Here is a point I wish to have you notice: While I was there, fifteen years, only once in all that time did the large swarms, which came from those boxes, gather a sufficient amount of stores to winter on. When spring came they would have a lot of empty comb and dead bees. Again, in 1894 I bought three hives of bees of a man, and he told me he had not got a pound of honey from them in ten years. I took them home and put them into a hive half the size that they had occupied, and that same year they gave me over 100 lbs. per colony. When I saw the man, and told him what the bees had done, he held up both hands, and exclaimed, "My goodness! how did you do it?"

I can give you many instances just as good as this. During the last few days men have been coming to me for sections and foundation, saying they have hives with brood-chambers 12×12×8 inches deep that have their supers filled, while they have other hives 16×19×15 inches deep, with no surplus. Are not these good reasons for advocating small hives?

Again, this spring I saw which will swarm first. The nine-frame cast the first swarm by 12 days. The large hive swarmed without a pound of honey in the super; the small one, with 24 well-filled sections. Again, neither Mr. Dadant nor any other man can possibly get the bees in a large hive to re-enter the surplus-apartment as soon after taking off the sections as he can with a small hive. In a small hive, if properly ventilated, the bees are compelled to go above for room, while in a large hive they have plenty of room below. I do not see how any one living in a latitude like this, where honey-flows are of such short duration, can advocate a large hive. It is simply impossible to be successful.

As my article is too long I must describe the size and kind of hive some future day. We know the farmer bee-keeper can not use the same kind of hive that the man does who makes the bee-business a specialty; and the point of locality must not be lost sight of.

Granville, O., July 3.

[In GLEANINGS for Aug. 15, page 611, you will find that we have summed up this whole hive question. In a word, the size of the brood-chamber depends largely upon the locality, and, secondarily, upon the bee-keeper's peculiar notions. From the mass of evidence that has been produced, I believe large hives are not practical in some localities, in the same way that small ones are not adapted for others. Manufacturers might as well give up the notion that bee-keepers can be driven like a flock of sheep over one road — the road denominated the eight-frame Langstroth hive pure and simple.

The proof of the pudding is in the eating; and where large hives give big results in dollars and cents, it is folly to talk small hives; but when the small hives will outstrip the big ones, as seems to be the case in your locality, it is penny wise and pound foolish to discard small for large hives.—ED.]

BEES IN THE SANTA LUCIA MOUNTAINS, CAL.

A Splendid Location for Bees.

BY C. M. DRAKE.

My school trustees have the bee fever. They caught it late last season, and have not yet recovered from it. We live near the Pacific Ocean, in Monterey Co., where is one of the grand bee-places in California. There were no bee-men here when I came to take the school in April; but by silver speech and golden arguments about what bees must do in such a range I got my trustees to making Langstroth hives and taking wild bees. They had never seen a Langstroth hive, but they knew bee-trees. It is hard to say whether they believed less of my tales of immense crops in Southern California or I their stories of bee-trees. But when I saw five colonies in one big redwood, I was forced to believe that a story of robbing seven colonies in one tree, and taking out boilers and wash-tubs and coal-oil cans full of honey from one tree, and leaving lots they did not care to take, might be true. And there are bee-caves in solid marble homes, from which come streams of bees — well, somewhat less than the Mississippi in size.

"I suspect your honey season may run into July here," I remarked.

"August is our best honey month," was the astounding answer; and, though I have not found it quite so, the bees at this date, Sept. 13, are rapidly building combs, and making honey fast. They could be extracted now, and would fill up. Last Saturday I took a swarm from a white-oak stump. Two months before, we had taken from that stump the worst stingers I ever saw. We got the queen, two cans of honey, a hiveful of bees and comb, and brought them home. Far in a root were a few little patches of brood, a handful of bees, and no honey except what we left on the sides of the sawed-off stump.

They raised a queen whose bees are very gentle. I went there last Saturday with a five-frame hive, took out the bees, and brood enough to fill one frame (the rest was in too broken pieces), to carry three miles, and I carried them to my schoolhouse. In an hour they were flying out to work. In a week the quart of bees have built nearly two frames of comb, and filled them with eggs. They will, I doubt not, live through the winter, and be a fair colony next spring. We had to put supers on three of our hives within this week.

They are now building comb and storing honey rapidly there.

This strip of coast, you must know, is an evergreen land, and they tell me bees can make a living any month.

"I knew where sixty or more bee-trees were; but the fire last year killed most of them," said my trustee. "But I think I can find some more," and so we did. Every Saturday we took a bee-tree except when I was busy at shells. We have 16 colonies now, and I don't wish to tell how much honey we took out; and, earlier in the season, it was beautiful honey too. As for bee-trees and bee-caves, they are so thick that you can't help finding them. They ride around, guess that yonder redwood, pine, or oak, might be a bee-tree, ride up to it, if accessible, and often find another tree on the way. I do not doubt there are 100 now left within easy reach of this house. Not *easy* reach—that is not true. This is one of the roughest, wildest mountains I ever saw — no roads and trails to make your hair and horses stand on end. When my landlord says, "The tree is a little hard to get at," I leave a letter of farewell to be forwarded to my wife in case of accident. Even 1000 or 2000 feet of climbing is nothing in going to a bee-tree here. You are lucky not to have several such climbs. I kept bees in Southern California for ten years, as old files of GLEANINGS will show; but in some ways this beats any other spot I ever saw; but it almost kills a man to get in and out. They have wonderful gardens and orchards here too, and a steamer once a year to bring in fresh groceries. When they wanted honey they went and cut down a bee-tree, any time of year, took the honey, and let the bees rustle. They did not want bees; there were lots of them; and as for saving the wax, they never thought of it. By the way, we had to made our hives by cutting a redwood-tree and splitting the hives out. One good tree will make, I estimate, 500 or more hives.

Gorda, Cal., Sept. 13, 1899.

BEE-KEEPING IN CUBA.

Are Once Robbers Always Robbers?

BY HARRY HOWE.

As my experience here is limited by a few weeks I will attempt no general view of the situation. There are, however, some particular points upon which I wish to write. At the Philadelphia convention there was some discussion as to whether robber bees ever return to honest ways. When I got here and saw robbers thicker and more aggressive than I ever saw them at home I went at it to see what the facts were upon this point. About the only bees flying very much after it gets hot in the forenoon are those shiny black fellows—professional robbers it may be.

At this time a walk through the fields will show but few bees upon the blossoms, and a good share of these are those identical "robbers." This is true, not only near the apiary, but as far away as I have found bees. These fellows are such a small minority of all the bees, that, in a time when the bees generally go to the fields, it is hard to find one on the blossoms.

Another point I should like the advocates of the "once a robber always a robber" idea to explain. What becomes of them when a honey-flow commences suddenly, as it often does, from basswood for instance? One day the robbers may follow one around the apiary by the hundred, pitching into every hive that is opened. In a day or two basswood is out, and one can leave honey anywhere in the yard, and not a bee will look at it.

I am feeding considerable here now to stimulate the bees for the honey harvest in November. It is a sticky, mussy job at the best to feed each colony separately in an apiary of 200, so I have tried the plan of taking a hive-body, with enough combs to keep a Miller feeder from dropping through; set it up a few inches from the ground, with a feeder full of honey, and water on top. A row of them are set in some bushes in one corner of the apiary; and as fast as they are emptied by the bees they are filled up again. When the feeders are on the hives there are always robbers hanging around trying to get at the honey, which they smell. By this method they seem to act about as they would if the honey came in from the fields.

The home yard here, instead of being under sheds, is in a dense grove of tropical fruit; then when the apiarist feels like it, all he has to do is to reach up and knock off the kind he likes best.

There is also a hammock under the shade of a wide veranda to the tool-house, where there is nothing to detract from the enjoyment of the almost constant breeze but a Spanish grammar. Senor Ranelo, with whom I am, speaks but a few words of English, while my first start in Spanish was on the way down.

There is no one within several miles who does speak English. This makes me take Spanish grammar in larger doses than I should otherwise.

I have a fine boarding-place and two large airy rooms, one of which I have fitted up for a photographic dark-room, where I spend many of my evenings trying to get the hang of making good pictures where the well water stands at 75° and gets to be 85° very soon in my washing-tanks, etc. Just enough of the plates make good pictures to keep me at it.

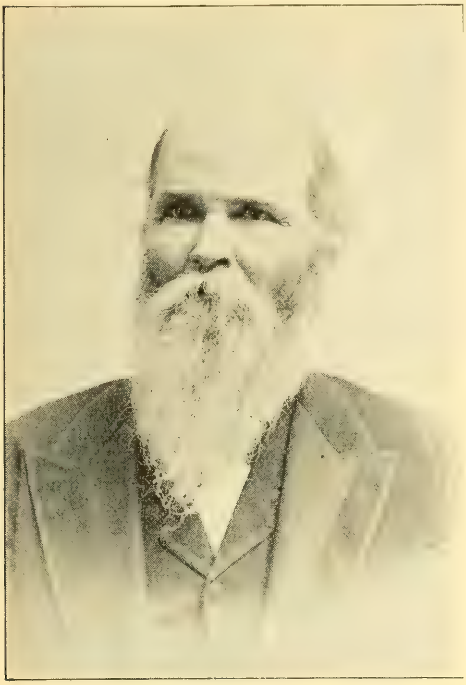
[If any one has ever seen real robbing at home it is Harry Howe; so you can imagine the robbing must be pretty bad in Cuba. In Straws in this issue this same subject is referred to; and while I think we may conclude that bees that get into the robbing habit can and will gather honey like other bees, yet they are not quite the same bees for getting an honest living that they were before they got into the bad habit. A drunkard may reform; but he is never quite the same man afterward that he was before. The old craving is there, and the old sinful desires just the same, although, perhaps, held under control.—Ed.]

RAMBLE 177.

At Mr. Elon Hart's; the Pasadena Ostrich-farm.

BY RAMBLER.

The beautiful city of Pasadena (the crown of the valley) is but a few miles from Los Angeles, and nestles close to the foot of the Sierra Madre Mountains. Good wagon, electric, and steam roads connect the two cities, and now a cycleway is under construction. The roadbed will be of Oregon pine, ten feet wide, and protected on the sides by wire netting. Electric lights at the proper time will flash on either side at intervals of every few yards, and, when completed, it will be the grandest thing in the world—so the local papers say.



MR. ELON HART.

Mr. McNay and I could not wait for the completion of this cycleway, and we rotated ourselves over a fairly good road to Pasadena. Many bee-keepers find here congenial and happy homes in the fragrant shade of the orange-trees and the climbing roses. It was here in the flower-embroidered crown that Mr. C. A. Hatch and family, of Wisconsin, made their headquarters during their stay in California; and since their return east I understand that they are pining to return again to live among the roses. This is always to be expected; for when a person makes a short sojourn here in this favored clime he is quite sure to get back some time, and that is what we may expect Mr. Hatch to do.

Mr. Farr, who moves his bees to Utah by the carload, and clears thousands of dollars by his enterprise, also owns a flower-embowered home here. Our journey was aimed toward the residence of Mr. Elon Hart, one of the most prominent bee-keepers in Southern California. He has a nice residence within the city limits; can sit at ease under his own orange-tree; has sons and daughters and grandchildren to rise up and call him to dinner. Mr. Hart has about 150 colonies of bees, and during a greater portion of the year they are kept in the home apiary. The bees get a good start, and sometimes much surplus from the orange and other fruit bloom; then the apiary is moved to the hills to catch the sage bloom.

I am inclined to think that Mr. Hart would have struck a good thing if, several years ago, he had started into the manufacture of bee-keepers' supplies, for he is a good manipulator of tools; but the only thing in the mechanical line that he has attempted is the manufacture of foundation, of which he has made several tons for the bee-keepers near him.

Mr. Hart held the office of foul-brood inspector for Los Angeles County for several years, but he has lately retired from the position, and there are no complaints rising up against him.

He is part owner in the right to manufacture and sell the Heddon hive for several counties of Southern California; but the manufacture and sale have never been pushed; and now Mr. Hart, instead of using the regular Heddon frame, uses a frame with closed ends, but deeper than the Heddon. This seems to be satisfactory, and it is in line with the ideas of several bee-keepers who seem to be level-headed. After experimenting upon several sizes of hives, they have in use a frame about 7 inches in depth, and using nine or ten frames in a hive; and we are assured that their hives are the very best for the development of the swarm and the honey crop. But no hive or bee or bee-keeper has yet been found to flourish during the dry seasons of

MR. HART'S APIARY.

Southern California, and, as a consequence, a number of Mr. Hart's colonies have joined the great majority, where the seasons trouble not and where the bee's sting is folded for ever.

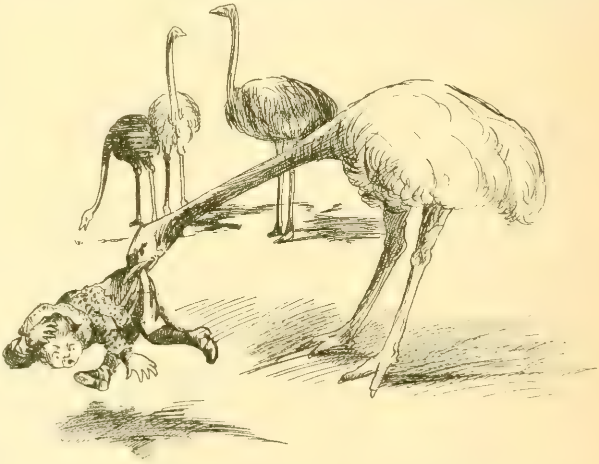
We found Mr. Hart a little blue over his losses and the prospects, present and future; but he was holding up remarkably for a man of his age. The storms of many winters in the East, and the sun of several summers in California, and the many stings from the lively little bee, have whitened his locks; but what of that? his faithful wife is ready to console him; his unmarried daughter ready to bring him his hat or his slippers. (H-u-m, h-e-i-g-h-o! let me see; where was I at?) Oh, yes! and he has a son to start the fire in the morning, and grandchildren just old enough to pull his whiskers. Besides these advantages he has the money he has earned from his bees salted down in city lots, etc. There is no earthly use for Mr. Hart to have the least shade of blue; but bee-keepers will do such things in spite of the good circumstances with which they are surrounded.

UNDER THE ORANGE-TREE.

Mr. Hart is decidedly in favor of the Carniolan bee, and quite a number of his colonies are of that race. They gather more honey, sting less, and are on that account a more desirable bee for city life. This is a point that city bee-keepers should take into consideration. Much of the trouble which arises from keeping bees where the neighbors are near and plentiful comes from having a strain of cross bees. A bee-keeper not far from Mr. Hart's owned about thirty colonies of bees, and one night had them all tipped over, and some of them ruined, just because a child was stung by a few bees. Instead of stirring up the whole neighborhood, Mr. Hart's Carniolan bees allow his grandchildren to take many liberties in their vicinity, and no stings received.

I herewith present photos of Mr. Hart and his apiary, also a snap shot of Mr. Hart, Miss Hart, and Mr. McNay. The latter is doing something that he can not do in Wisconsin. He is picking oranges. When we left the Hart grounds our pockets all had a bulge on them from the number of oranges stowed away in them. We hope many days yet to the sage of the Sierra Madre foothills.

Upon our return the Pasadena ostrich-farm lay directly in our route, and a call there was not devoid of interest. There are a great many fine things in Wisconsin to boast of, but Mr. McNay could not brag about Wisconsin ostrich-farms. That is where we get the best of Eastern people, we have such unique things out here. The ostrich is a unique bird, rather overgrown, and a hundred of such feathered monstrosities give the spectator a unique feeling, and a large male ostrich can make things about as lively as a colony of cross bees. The ostrich is a tall bird, and some of the specimens here are fully twelve feet in height, if not more. They are so supple that they can pick buttons off your shoes or an ornament from the hat, with but little effort in bending. They all have an excellent appetite, and their daily rations are alfalfa and carrots; but they are not particular what they eat. A lady stood near the corral one day, and the ostrich under observation grabbed her gold watch. The attendant saved it; but had it not been for the attendant the watch would have gone the way of the carrots. Sometimes they take a notion that a man's nose or his ears would make a fine tidbit; then there is a scene. It is said that one minister of the gospel, upon being severely interviewed in that way, actually took the two D. D.'s from the rear of his own name and placed them in front of the ostrich's name. It is also said that he can not talk ostriches since, with equanimity. Buttons on the coat, or, in fact, any thing that appears transferable, is welcome to the ostrich. Their



"A KID IS LOOKED UPON AS A CURIOSITY."

necks are very much like the average politician — have no backbone, and they can turn their heads clear round so quick as to almost look themselves in the face. The only way to subdue an ostrich is to wind his neck around his legs and tie it in a double bow-knot. The ostrich never smiles, and takes every thing for granted and many things that are not granted. His means of defense is his foot, and he kicks forward just like a man; but, what a kick! He will kick a board off a fence and into kindling-wood. Bill McKinley (that's the name of the big ostrich) got angry at some cross-eyed remark his wife made, and he killed her with one kick. The ostrich does not sing, cackle, or quack. It has an inclination to be sociable; but when the words start from the lungs they evaporate before they reach the head (wonderful provision, especially in the *female* ostriches). His life is regulated almost altogether by dumb signs; and only when angry will the male ostrich give utterance, and the attendant said it was not unlike the roar of a lion.

A little whiffet of a dog not so large as a pint of cider will scare the life out of an ostrich, and make the whole flock run around the corral like race-horses. A kid, however, is looked upon as a curiosity, and handled as such. I have a notion that the ostrich will, after all, find his sphere in some reformatory where these refractory kids are trained. Kids are so loath to fall into the care of an ostrich the second time that they are very good as long as the ostrich is in sight.

When an ostrich tips his head up sidewise, cocks his eye and drops his under lip, you can always know that he is fixing for a grab, and you may regulate your life accordingly.

The ostrich is a queer bird. and is put to a queer use — just growing feathers to adorn ladies' bonnets. They look pretty, of course; but isn't such adornment a relic of barbarism?

The charge for admittance to this farm is two bits; but when a man's wife accompanies him he hardly ever comes out without having paid five or ten dollars for feathers. This is another point where the man and the ostrich resemble each other—the ostrich is plucked, and so is the man.

This kind of poultry would not work well with an apiary. If the hives were not swallowed as an article of diet they would be kicked to splinters upon the least provocation. Then a good feather-bearing ostrich is worth from two to three hundred dollars; and what bee-keeper can launch out money at that rate to stock a farm? Mr. McNay, the wealthy bee-keeper of Wisconsin, might; but, alas for us Californians! after these two dry seasons there is not one in ten of us who feels able to buy a Shanghai rooster. There can be much more said about the ostrich, but probably the above is about as much as the bee-keeping world can stand at this time.

X. B. L., Quebec.—As to the best French bee journal, that is a matter of taste. Probably Bertrand's *Revue Internationale* would suit you. It is printed in Nyon, Switzerland.

THE REFORMED SPELLING.

The Reform to be Accomplished Step by Step, and Not by Radical Change.

BY E. B. THORNTON.

I am glad to learn that you are in favor of the short spelling, though you do not yet see your way clear to adopt it. I note, however, that you do adopt many short spellings. See the following from the July 1st issue: Catalog (formerly here and in England still spelled catalogue); also neighbor for neighbour; plow for plough; center for centre; wagon for waggon; color for colour.

I do not know how many more might have been selected. It all depends on the point of view. The more ancient the book or manuscript you compare it with, the more does modern English depart from what was once considered correct.

The "taste" of Milton or Shakespeare would doubtless have been greatly "offended" by the spelling on any page of GLEANINGS or the *Review*. It seems to me that a man who wants to do right will find in this subject not a question of esthetics, but one of ethics. The schoolchildren of England and America are robbed of two years of their school life in order to learn something that might better be left unlearned.

The editor of the *Independent* puts the matter in its true light when he says that the whole matter is one that "properly belongs to the societies for the prevention of cruelty to children." "The weariness, the tears, the blotted copybooks, the nervous strain we put on our children, are our shame." . . . . "We are often told that our children are far more backward than the children of other languages. How can it be otherwise? The time that we waste in learning to read and spell, a German or Spanish or Italian child can give to his arithmetic and geography." . . . . "Many more children could go to the high school and to college if their years and their patience had not been exhausted in useless labor at the very threshold of learning."

Then why not try a little more of the new spelling, in GLEANINGS? You will not be long alone. Spelling reformers are making special effort to promote the orthography of the following list of words as recommended by the National Educational Association:

Program (programme); tho (though); altho (although); thoro (thorough); thorofare (thoroughfare); thru (through); thruout (throughout); catalog (catalogue); prolog (prologue); decalog (decalogue); demagog (demagogue); pedagog (pedagogue).

This list is small; but as a rallying-point it is important. If we can not reform these spellings we can not reform any. We want our friends to show their colors. In union there is strength. The true friends of the reform do not neglect small opportunities while waiting for larger ones.

Pitman tried for fifty years to make a complete job of it on a thoroughly phonetic basis, and he accomplished little more than to call attention (not always favorable) to the subject. American reformers in the meantime have brought forward not less than a dozen different systems, but no one would adopt them. The trouble with them all is that they are *too* good. They go too far. The only advance that has ever been made on this line has been made by the step-by-step method—a word or a class of words at a time. The new must grow out of the old. The old system is not, as Mr. Hutchinson says, radically wrong. English spelling has a phonetic foundation. It is the details that need tinkering with. It is in everybody's power to do a little tinkering. Nobody has the power to effect a complete reform.

Addison, N. Y., July 23.

[Personally we (the Root Co.) approve of the changes suggested by the National Educational Association; but we do not know whether our readers would sanction it or not. For an experiment we will lay the matter before them; that is, we should like postal-card votes on the matter. All those who fail to vote, we shall assume have no preferences one way or the other, so that a majority of those who do vote either for or against may decide.

These changes are very moderate, and are not such as would shock the average reader. I have always felt, however, that to spell the word *past* for *passed*, and carry out this rule all through, was perhaps going a little too far, because it includes such a very large class of words, and really saves but little in the way of type; but when, for instance, we can omit *ugh* from the words *though*, *although*, *through*, *thoroughfare*, etc., *ue* from *catalog*, *decalog*, etc., and *me* from *program*, then we are making a step in advance, and about as big a one as would seem to us wise for us to take. We have already begun it by spelling *programme program*, *catalogue catalog*, and none of our readers have interposed or objected. Now, will they if we go one step further? I feel that we can hardly be in sympathy with the movement for shorter spelling without at least putting that sympathy into tangible form.—Ed.]

* * *

EXPERTS VS. AMATEURS.

How the Veterans Sometimes Mislead.

BY R. A. LAPSLEY.

Not long ago I was talking with a veteran schoolteacher about text-books for beginners in Latin and Greek. He expressed the opinion that eminent specialists, scholars like Gildersleeve, for example, are incapable of writing text-books for beginners. They have gotten so far along in "high larnin'" that they can not bring their minds down to the simple modes of thought which beginners need. Whether my schoolteacher friend was right as to Latin and Greek text-books, I leave the learned to decide. But it seems to me I see something of this sort in the bee-journals. When the man who has been handling bees for 20 or 30 years, making his own hives, inventing bee escaps, queen-traps, and what not, undertakes to give us beginners "a certain and practical method" for doing something, I feel like saying, "Yes, 'certain' under *your* eye, Dr. Miller, and 'practical' in *your* hands, Bro. Doolittle." And I feel more like saying something of this sort to-day than ever (only in this case neither Dr. Miller nor Mr. Dooolittle is in it). I have just returned from gazing upon the cold "corpus" of a valuable queen that came to her end through her master's infatuation with one of these "certain and practical methods." I got this queen a few days ago from a noted breeder, and did not wish to lose her, so I tried the introducing-cage recommended by F. Greiner, Gleanings for Oct. 1, 1898, page 727. If the reader will take the trouble to look up that number his eye will be caught, as mine was, by the good looks of that queen-cage. Take a careful survey of those raveled ends of wire projecting from the bottom of the cage. They look in the picture like ten-penny nails, or even railroad spikes. You could stick them through an inch plank, much less a soft bit of wax like a bee-comb. So it looks; but just make a cage and try it. Those spikes turn out to be limber wires with just a little more penetrating power than a piece of string. You manage to get your queen inside of the cage without pulling her head off or daubing her up with the honey those innocent little wires have set running. You "firmly imbed" the wires into the comb, so you think, and you leave your costly queen in this death-trap among her eager enemies. You look on the third or fourth day to find your queen — *non est* — in plain English, murdered, and the bees which have gnawed out the comb from around your "safe and practical" cage, playing hide and seek among those same seductive little wires.

I don't know whether this brief narration will display the misleading advice of the experts, or the awkwardness of the amateur. I leave that for the editorial footnote to pass upon.

Greenville, Va.

[There is a good deal of truth in what you say with reference to those who write text-books on Greek and Latin, and even on mathematics. I remember once an instance where a certain professor in mathematics was almost a failure because he saw every thing at a single glance, while the average pupil under him would have to go from one step to another to follow out a difficult train of reasoning in the solution of a mathematical problem. Whether instructors on the subject of bee keeping are guilty of any of this same fault is doubtful; but if they are, it is in being too positive, sometimes, in laying down certain rules. In reference to the method of introduction, I thought myself that Mr. Hutchinson, when he called it "a certain method of introduction," was putting it on a little too strong. But your trouble, I think, was occasioned by the fact that you made too long the strands in the wire cage, and that you pressed the cage at a spot where there was too much sealed honey, causing drip to run down on the queen.

It should be pressed over hatching brood having *a few* cells of honey here and there, so as to give the queen a supply of food as well as an accompaniment of young bees.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE

DO BEES SELECT A HOME BEFORE SWARMING?

Question.—Do you think that bees select a place to go to before the swarm leaves the parent hive? The past summer I had a swarm come out and go direct to a tree in the woods, without even stopping to cluster. I think that they had their home selected before they left the old hive; but my neighbor says that bees do not know where they are going when they come out in swarming time; for if they did, swarms would not cluster at all.

Answer.—In regard to bees selecting a home before they swarm, there seems to be a difference of opinion, some claiming that they do select it, while others are equally sure that they swarm without any knowledge of where they are going. In most cases, probably, the latter view is correct; for swarms have been known to come out, cluster, hang all day and over night, travel a few miles, then cluster again, and so on for a week or more before they found a home anywhere; yet I am positive that some swarms do select their future abode some days before they swarm. When but a boy I many times saw bees searching the body of large trees, about every knot-hole or crack, which stood on the edge of the woods near where I was at work, as if looking for some place to enter; and at that time I remember wondering what they were doing. Later on the same thing was witnessed, only at this time the bees were actually going in and out of a hole in a very large tree, as well as looking over the trunk of the same. In this latter case the bees were seen for several days at work during the middle of the day, the bees going and coming from the hole about as bees would work from a weakly nucleus; while in the morning, and after five in the afternoon, no bees would be seen about this or any of the trees. A few days after that, a swarm came out from one of the few hives which father kept at that time, and went straight to this tree without clustering at all. From this I felt sure that in some instances bees did select a tree to go to before they left the parent hive; but after having bees of my own, and seeing them cluster soon after they had come out, for hours, and in one instance stay till they had built considerable comb, I did not know what to think in the matter. At about this time a party living about four miles from me purchased the Italian bee, and with him I went into partnership in queen-rearing, in my early bee-keeping life, so was with him considerable of the time. He told me, one day, that at an out-apiary which he was working, which contained only black bees, he had noticed in the forenoon Italian bees at work cleaning out an empty hive which stood near one side of the yard. This was something new to him, he being considerably excited about it. He said he should keep watch of the matter and see what became of it. I was also much interested, and told him what I had seen, as related above.

The next time I went there he told me that the bees which he saw cleaning the hive were his own, as he had surmised after I told him what I knew in the matter a few days before; for at that time his bees were the only Italians within four or five miles of his residence. He said that a swarm came out from one of his hives, and, after circling around a few times, started off in the direction of this out-apiary. Having a fleet horse near at hand, and being a fearless rider, he jumped upon it, and in a moment was going at railroad speed for this out-apiary, arriving there in time to see his swarm of Italian bees rushing pellmell into the hive that the bees had been cleaning out. As he kept the wings of all his queens clipped, he knew that he could soon tell for a certainty whether these were his bees or not, although he had no reason to doubt the matter now; for if they were he had their queen at home in a cage, and sooner or later they must return to her unless they had come across some queen in their flight. In about half an hour they became uneasy and began to leave the hive, seeing which he returned home only to find them coming back and running into the hive from which they went, and clustering about the cage containing the queen which he had left at the entrance of the old hive. He now liberated their queen, and the next day they swarmed again, and again went to this hive at the out-apiary as before.

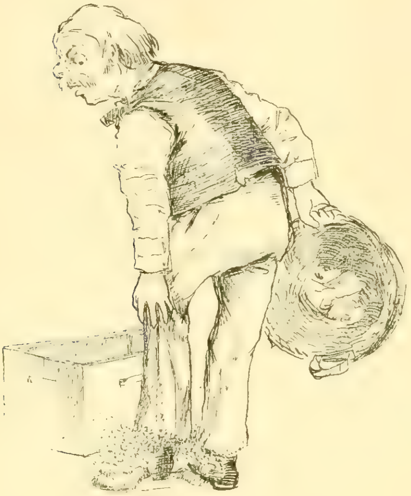
This was kept up for four or five days, when he became tired of it, and then he divided the colony, thus putting a stop to their swarming. The above instance can not be accounted for in any other way than that the bees had selected their future home before leaving the parent hive; but that they always do thus is by no means proved by these incidents.

My opinion is, that where one swarm thus selects its future home before leaving the parent hive, ten do not thus select, but go out without any idea of where they are going, and, after clustering, send out scouts in search of some suitable place for a home. If the scouts fail in finding such a place, the swarm unclusters and moves off from three to ten miles, when they cluster again, and again send out scouts, thus clustering and sending out scouts until a suitable place is found. If a rainy day or two come on while they are clustered out on a limb, they build some comb; and if the weather is warm, and plenty of honey is to be found near, when the weather clears up again they may cease to look further for a home, and may make a home of the limb, rearing brood and storing honey the same as if in a hollow tree, a cleft in the rocks, or a hive; for the cases are by no means isolated where colonies have been found with plenty of combs, brood, and honey, for wintering, with nothing to shield them from the elements save the twigs and a few leaves above them. I have a queen in my yard now whose mother's colony thus made a home in a grapevine, secured by a bee-keeping friend in New Jersey.

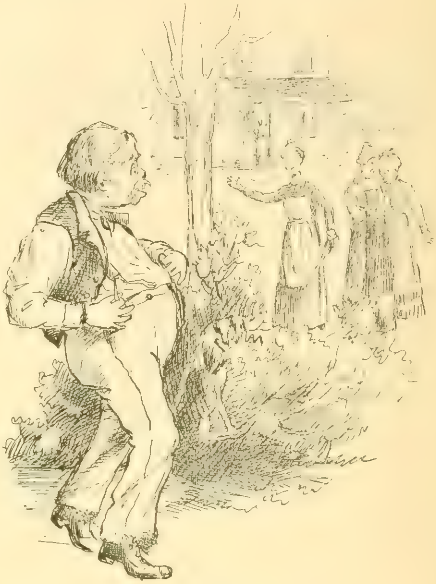
A LIVING BEE-HIVE.

BY LOUIS SCHERFF.

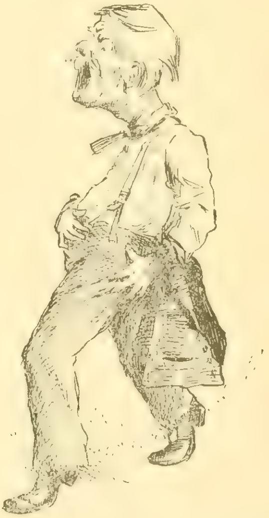
I alvays hat a great bassion for pees—
Ya, much more as for lager unt Limburger cheese.
I shpent, von time, a whole lots of money
For two hifes o' pees vot gif lots o' honey.
I pought poxes for de new young shwarm
Vot gomes out in der shpring, ven'ts warm;
Unt ven I hifed 'em it seemt efry von pee
Hat daken a special liken to me.
Vy! somdimes da vould all ofer me grawl,
Unt nefer vould shting me much at all.
But der las' dime I vant to dell you 'bout,
I vos, like Sullivan, gombletely nockt out.
It vos in der early bart of der mont of Shuly,
Unt der vedder vas very varm unt dry.
Dat day I vos shoost goin' up town,



Ven a shwarm of pees hat seddled down
On de lower limb of a mable dree
Vot shtoot on de lawn of Mrs. Free.
My first imbuls vos to get me a hife
For to put 'em in, und dus deprive
Someboty else from daken 'em in,
Aldough I knew 'twould be a big sin
To take efen so much as a shwarm of pees
Vot in Shuly isn't vort two fleas.
Yust as I vos apout homeward to turn,
Mrs. Free came out und said dey ver hern.
"All ride, Mrs. Free," said I politely. "Dat vill do.
Vill you be so kind und let me hife 'em for you?"
"Indeet, my friend, I could hardly ask it."
"Nefer mind, Mrs. Free; pring me a pushel pasket
Unt a nice glean pox, or a pee-hife.
Den I shake 'em in de basket, unt den drive
Dat whole shwarm in de pox. Dat vay can be seen
If dose pees got some drones, unt also a queen."
De pasket unt hife ver soon on hant,
Unt mit dat pasket in von arm, dook mine shtant
Unter dat limb vhere dose pees hung,
Unt shook 'em in, mitout pein' shtung;
Ven, insteat in de pasket, on trough dhey did roll
For dat pasket poddom hat a big hole
Vot in mine hurry I hat not seen,
Unt let dem pees trough shlick unt glean.
I vos poody mutch supprised indeet,
Ven I saw dat hole shwarm down on my feet.
Do you know dat a pee vill alvays strife
Ven it's down to crawl up into de hife?
Dhey musty supposed me someding like dat;
For a good deal quicker as you can say "scat"
Dat whole shwarm dook der very first chance,
Unt movet up into der legs of mine bants;

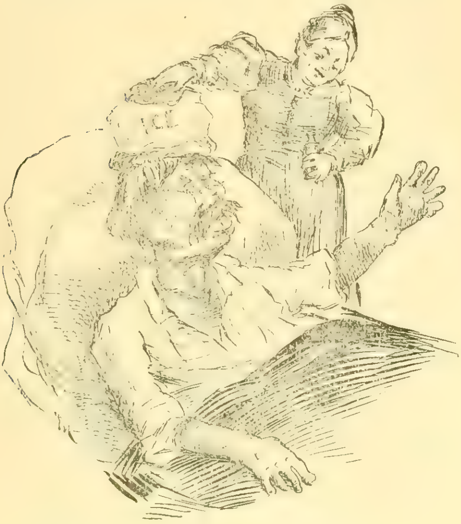


Unt as der vedder vos very varm unt fair,
I hat on only dat von single bair.
Bout a dozen of vomen from dat neighborhoot
By de fence unt on de sidevalk shtood;
Some on de lawn, unt under de trees,
Vatching me hife dot shwarm of pees.
Ven dhey saw mine awful perdickament,
Not von a helpin hant vould lent;



But all of 'em cried out in fright unt fear,
"Mr. S., don't you dake your bants off here."
To arcu de case, I saw vould do no good,
So I shtarted for home as quick as I could;
Vitch, as luck vould haf it, vos only half a square,
Else I vould a died before I'd a got dare;
For efry shtep I dook my bants vould shqueese
Poody hart against dat shwarm of pees.
Den dey vould sent der shtings into mine skin,
Unt I'd shump like a poy on a pent pin.

Vhen I reached home I told mine vife
Dat I vas der only lifing, valking pee-hife.
Ven I pegan poody quick to take off my bants,
I got shtung some more on my face unt my hants.
Put she ran pehind de lace curtain to hide,
Unt lafft till I dought she'd shplit her own side.
Dat made me so mad dat I pegan cryin
For her to come quick—dat I was a dyin.
Dat shcared her. She crabbed de bants from de floor,
Mit dem pees in, unt shlung 'em out of de door.
Soon mit a broom she hat de rest all dead,
Den she helped me shently on to mine ped;
Unt for half an hour she vos busy as could be,
Pullin' all dem pee-stingers out of me.
By dat dime I dell you, I vos a sight;
I nefer in mine life vos shwelled up so tight.
Soon some of dose vomen, vot gave me no chance
Ven first dose pees crawled up mine bants,



Came in, unt arount mine ped now clung,
Anxious to see how pad I vos shtung.
Den von vould tell me dis, unt von dat to try;
Anoder vould tell me someding else to apply.
I nefer knew before, until I met dese,
Dat so many vomen hat been shtung py pees.
Von said she knew if I vos packt in vet clay
From my knees on down 'tvould take all der shwellin avay.
"Madam, you can see from der swell of mine head
I ought to be packed from my knees up," I said.
She allowed vet clay vould, like any good rule,
Work either up or down (said my wife, "On a fool").
We tried dis remedy after dey vent avay,
Unt dat's der only reason I'm lifin to-day.
If we hadn't, I'd been carried on in a gasket,
As sure as der vos a hole in de boddom of dat pasket.

HEADS OF GRAIN FROM DIFFERENT FIELDS

A RECORD-BREAKING HONEY-QUEEN.

I notice on page 603, where some one speaks of a queen whose bees have filled 100 sections with honey and "are still pegging away." Now, I have a queen that has done better than that, but she is not for sale. Her bees have filled 7 supers of 28 sections each, making 196, every one perfect, besides 45 pounds of extracted honey. Last winter was very severe on the bees in this locality; and this spring, out of 41 colonies I had only 12 that I thought would do more than build up for winter again, and from these 12 I expected to get only a small quantity of extracted honey; so I put on a super of extracting-frames the 20th of June. The bees I speak of seemed to go right to work, and in a short time I extracted 45 pounds. I then put on 3 supers in place of the frames; and as fast as the bees filled them I raised them, putting others under until they had filled 7; then, fearing the honey-flow was about over, and yet not wishing to close them down too close, I gave them a super of unfinished sections, and they completed them. MRS. J. M. McLEAN.

Ft. Collins, Colo.

[Well, now, Mrs. M., you just keep that queen and rear daughters from her. See that her colony winters well; and next summer, if you do not get calls for daughters from this queen, I shall miss my guess. We are quite glad to give a free advertisement to any one who has a queen that outstrips every thing else in the yard. Oh, yes! do not forget to reserve one of her best daughters for us.—ED.]

DRAPER BARNS FOR THE PRODUCTION OF COMB HONEY.

I have been noticing, in the four bee papers which I take, the comments on the large Dadant hives (or Draper barns, as some style them) which you are to give a thorough trial for the next three years. Well, I don't know any thing about what they call (your) "locality," but I *do* know that I have been experimenting with different sizes of hives, and that, as a result of the same, I am transferring *all* combs and bees to the large Quinby frame (I simply cut out combs and set them in large frames, hold the same in place for a few days with one wire and two small sticks, and patch out with foundation, and the bees soon make a nice comb); so you see they are *the* hive for me. Well, any way I know that *I* do not want any small hive — buckwheaters that swarm, such as Niver's locality calls for. I secured a fine lot of the best and prettiest white-clover honey this season that I ever saw, in tall sections with fences, and from "barns" too. What I want to know is this: What is the exact outside size and length of top-bar of the large frames you are making? are they the Quinby, the same size as those I have been getting from the Dadants?

Midway, Ky., Aug. 21. M. D. OFFUTT.

[The barn frames that we make are 11¼ inches deep by 17⅝ long. Indeed, it is the same thing as the regular Langstroth, but 2⅛ inches deeper.—ED.]

BEE-VEILS, AND HOW TO WEAR THEM; SULPHURIC ACID FOR WAX.

The extra GLEANINGS you sent is here. Page 543, subject bee-veils, interests me. I have tried wearing the veil as shown in the picture, but in this locality bees too often climb up inside the veil, while I always want them outside. To tuck the veil inside the shirt collar is the instruction which comes with the veil, I believe, and suits me better. To hold my neck as prim as a deacon from the wooden-nutmeg State might do; but I sometimes get a move on me, out slips the veil, and my neck looks as if I were a Grover Cleveland Democrat.

When using a veil I wear a broad-brimmed hat to protect my face from the bees that would like to poke fun at me, and to protect my eyes from the sun. Like the young fellow at the dance, I have changed my mind; you need not make the veils longer. It is a short job to fasten a three-inch strip of old muslin or calico to the veil, when it holds position better than an extra-long veil would.

In the second column, same page, I see you recommend sulphuric acid for wax. As the Dadants condemned it several years ago I have never tried it. If the acid works satisfactorily, that paragraph will be worth several years' subscription to GLEANINGS to me.

Grayson, Cal. W. A. H. GILSTRAP.

[At one time I know the Dadants did object to the use of sulphuric acid for refining wax, taking the ground that it destroyed the natural odor of the wax that is so pleasant. But at that time some of us were using a great deal more acid than was actually necessary to bring wax to a lemon color. We now use a very small quantity; and after refining, the wax is of a beautiful color as well as retaining that delightful honey smell that so many admire. A large foundation-maker in England once wrote us, asking us what we put in our foundation to give it such a delightful odor. We replied that we put in nothing, but that we refined all our wax with a little acid. The natural odor was due to the fact that we had not driven it out.—ED.]

AGAINST THE RAGE FOR COLOR IN BEES AND QUEENS.

I am glad some one has called a halt in the color question, and turned attention to the working qualities (p. 603). Does the average man keep bees for the color, or for dollars and cents? I have a queen whose bees have filled 112 sections, and have the third 56 nearly full, this year. She is very dark leather-colored. I have had her two years, and got her second-handed. Her bees are dark (not black) and fairly quiet. Yellow queens in the same yard, that started as strong as she, have made from 10 to 60 lbs. I don't want to sell this queen, but I wanted to tell you that those dark bees have made more honey by 50 lbs. than any yellow ones in the yard, or, I think, in the locality. C. W. McCOY.

Mt. Erie, Ill., Aug. 2.

EIGHTEEN-FOOT-TO-THE-POUND FOUNDATION.

You sent me a sample of 18-ft. foundation last year, and requested a report on it. As the honey crop was very light I did not get to test much of it until this season. I put it in one side of 4×5 sections, and in the other side Root's and Dadant's extra thin. The bees worked and finished both about alike. Drone comb was built in the lower part of the sections. After cutting and eating we find the least gob, or wax, in the 18-ft. There was a good deal of basswood bloom, but it yielded no honey; but white clover bloomed freely, and yielded well, but very irregularly, from June 11 to July 12. The flow from heartsease and Spanish needle has just begun, and promises well. My scale colony, Doolittle's golden Italians, net gain, is, for May, 6½ lbs.; June, 82½; July, 61¼; August (to date), 20. It is run for both extracted and comb. I have a hybrid colony that has brought in more cash than the golden Italians run for comb. A cold winter does not prevent a flow from white clover in *this* locality. We had the coldest weather here last February ever recorded — for two weeks, 10 to 28 below zero, and no snow on the ground. M. E. DAVIS.

Bethlehem, Ia., Aug. 29.

[There can be no question but the light-weight foundation will make less so-called gob in comb honey. The only thing we feared was that it would sag in the sections, or be so thin that the bees would gnaw it away. Before we put it out we feel that we require more reports.—ED.]

DISCOURAGING FROM BOARDMAN.

Perhaps I might as well add another wail of anguish to reports discouraging. My crop of honey is *very* short. Sweet clover helps me out after the basswood flow, so I shall have some honey to sell, and my bees are in fine condition at this date. My test of the English rape for bee-forage was an entire failure. I made several sowings, but the seed did not grow. I think it was damaged. I hardly think it can compare with sweet clover, which I think is the most valuable honey-plant in the whole world when compared acre for acre. H. R. BOARDMAN.

East Townsend, O., Aug. 15.

THE 5¼ × 4¼ × 1¼ TOO THIN, AND WHY.

As I have read a good deal on plain sections and fences, I too am experimenting along that line. I will send you a section of honey that I have produced under the fence system. This is a plain section, 5¼×4¼×1¼, and it is not quite to my satisfaction, the comb being too thin. You will find in GLEANINGS, Dec. 15, 1898, page 915, written by J. E. Crane, his query as to such a section. I had this section made when I saw Mr. Crane's idea of such a section. My aim was to get a section of the right proportion to look well; and that I should not have to do any filling endwise in the super, I tacked a rim on the super to accommodate the height of the section. The super holds 28 sections. This was given to a prime swarm, and filled up in short order. The outside sections were as well filled as any of the rest. There were 28 sections, each like every other one. The weight of this section I am sending is 12 ounces, weighed here. It may leak before it reaches you.

I for one am in favor of the fence and its use. LOUIS MOLL.

Eudora, Kan., Aug. 23.

[It is true that such a section is a little too thin; but it presents a very large surface with a comparatively small weight of honey. In a showcase or on a counter it looks as if it might be on a par with bottles with sunken sides, and fig-boxes with thick bottoms. I say it *might* be. I don't know.—ED.]

ON A WHEEL THROUGH THE BUCKWHEAT COUNTRY; CARNIOLANS.

I used to think that black bees were better than Italians, but have changed my mind after trying them nine years. But they don't cap their honey as white as the blacks do.

I have ridden down through the buckwheat territory of this State, and it is something immense, for there are acres and acres of it, and it yields honey too. I have ridden a wheel down through there two or three times, and had a nice visit with some of the bee-keepers. I saw those Carniolans drop in with those great loads of buckwheat honey. I don't wonder at their liking them. But I would not take them as a gift for my kind of honey, as they swarm too much. I don't want swarms, but honey. I have 185 colonies now in fine shape, the most of them, and I look for a poor year to come, for it will take a year to overcome the drouth. GEO. B. HOWE.

Black River, N. Y., Aug. 18.

[When I went through the buckwheat country I found the Carniolans very popular indeed among buckwheaters; but I heard nothing in regard to their being such excessive swarmers, although they have that reputation. One thing, the Carniolans deposit very little propolis: and if the right strains are obtained they are very gentle, and good workers.—ED.]

QUEEN-CELLS FROM A HOLY-LAND COLONY.

On the 14th I cut out 18 queen-cells from a Holy Land colony formed from a one-frame nucleus (bought in Texas April 18, 1899), that had just swarmed. While holding two cells, showing them to my wife, they hatched, one a queen and one a worker, both lively as crickets. Is it common for a worker to hatch from a fairly well-developed queen-cell?

CYRENE E. MORRIS.

Coon Rapids, Ia., Aug. 15.

[Holy-Land bees are the best cell-builders of any bees in the world; yes, they will build cells without any cups and without any coaxing, and the queens are large and vigorous. Indeed, we had one of their queens fly immediately upon emerging from the cell, some two or three feet.—ED.]

STARTING BEES INTO SECTIONS WITH EXTRACTING-COMBS; FORMING NUCLEI.

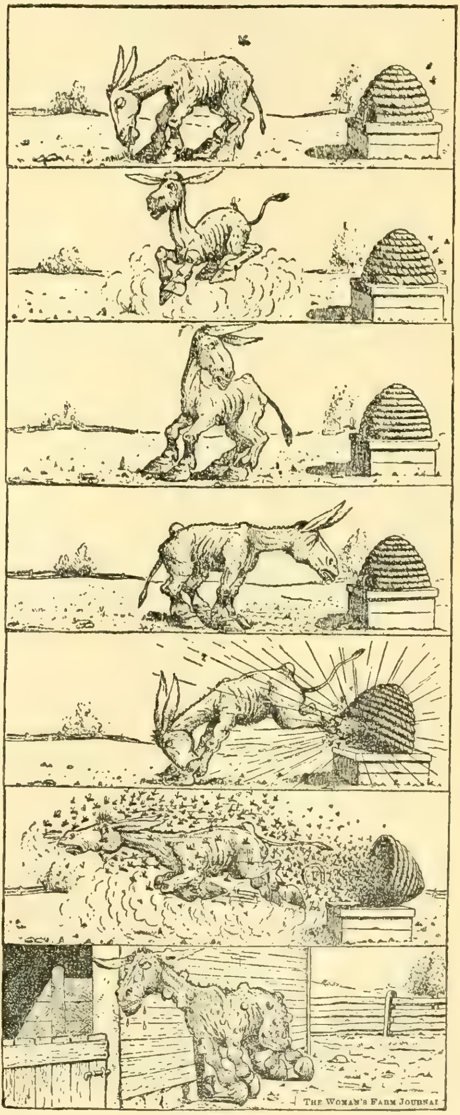
I use Hoffman self-spacing frames below, and shallow extracting-frames in supers, and run mostly for extracted. I like the plain sections first rate.

I tried a plan this season (and it works well) to get bees started in plain sections (3⅝x5x1½). Fix a 5¾-inch super with rabbets and tins for section-holders. At one side put a shallow frame of drawn foundation or comb; then a fence; next a section-holder and five sections; then a fence and another extracting-comb, and so on to fill out the super. When the bees get started in the sections the extracting-combs can be taken away and the super filled with sections, the combs being used as "baits," either in sections or extracting-supers on other hives.

When forming nuclei or new colonies I cause the bees to fill up, then shake them down in front of an empty hive, when they will run in like a new swarm. I have not found a nucleus, thus formed, to lose any appreciable number of its bees by their going back to their old home. I think what few do go back were not thoroughly filled up.

Le Mars, Iowa. G. A. C. CLARKE.

A Stinging Revenge.



THE WOMAN'S FARM JOURNAL

EDITORIAL

BY

E. R. ROOT

Eight extra pages this time.

HONEY ADVANCING.

If our readers will look over our Honey Column they will see that prices are advancing. No doubt some of the commission houses have taken our hint and advanced prices, with the result that others will have to follow.

KELLOGG'S PURE WHITE-CLOVER HONEY.

We have assurances from one large grocery company that they will not handle any more of the Kellogg "pure clover honey" purporting to come from Medina, O. They say they would not knowingly sell goods of this character, and that they are, moreover, requesting their salesmen to find out who it is that is putting out this spurious article, and injuring the name of the good old town of Medina.

GOVERNMENT AID TO BEE-KEEPERS.

Elsewhere in this issue I have referred to the fact that the Division of Entomology, U. S. Department of Agriculture, is proposing to examine pickled or other forms of diseased brood that have developed in various portions of the United States. These specimens of brood "will be turned over to Mr. Benton, who, with a bacteriologist from the Bureau of Animal Industry, will undertake the investigation." The fact that we are to receive aid from the government in this way, even though to a limited extent, will be hailed with delight by bee-keepers all over our land. It is the entering wedge; and it is hoped the time will soon arrive when we shall have an actual apicultural station, for one is greatly needed.

R. F. HOLTERMANN.

Most of our readers are doubtless aware of the fact that Mr. R. F. Holtermann, formerly editor of the *Canadian Bee Journal*, has retired from the active management of that publication. He believes he has been called of God to preach. At a great financial sacrifice to himself he has given up a good position with the Goold, Shapley & Muir Co., withdrawn from the company, retired from the editorial management of the *Canadian Bee Journal*, and resigned his position as lecturer for the Ontario government.

Mr. Holtermann has met with good success so far, and Gleanings wishes him Godspeed in every sense of the word.

While the *Canadian Bee Journal* regrets the retirement of Mr. Holtermann, it says it is its determination to turn out even a better publication than heretofore. It does not say who is to be the new editor; but the issue for October makes a very creditable appearance, and, indeed, upholds the standard that has been maintained by Mr. Holtermann for some time back.

GLEANINGS SUBSCRIPTION-LIST BOOMING; THE VALUE OF ILLUSTRATIONS.

Our subscription-list is on a boom. Gleanings has always been an illustrated journal, but it will be, from this time on, more so than ever. We realize the fact that it takes time to read; and where we can give information by pictures we will illustrate regardless of expense. The amount of published matter now in the world is so great that one would have to have a reading-machine if he would get through with even a very small portion of it; and as such a thing is out of the question it becomes necessary in this age of hurly-burly bustle to give people information that they can take in at a mere glance; and that the great magazines of the country appreciate this fact is shown by the large number of illustrations that grace their pages.

INTRODUCING IN THE ORDINARY BENTON MAILING-CAGE; A NEW KINK.

I recently learned that our Mr. Wardell has been very successful in introducing queens in the Benton cage. He withdraws the cork from the candy end, and then tacks a small piece of pasteboard over the hole. The bees will gnaw this board, and the time occupied in getting through it to the candy consumes anywhere from 24 to 36 hours. It then takes 10 or 12 hours more to get through the candy to the queen, assuming that half of the candy has been eaten by the queen and her attendants. This little piece of pasteboard prevents the queen from being released in much less than 48 hours, during which time the bees have had abundant opportunity to become acquainted with her, after which they will receive her kindly.

What led Mr. Wardell to use this piece of pasteboard was that sometimes the candy would be eaten out too soon, with the result that the bees would get at the queen in from 10 to 24 hours, resulting sometimes in her loss.

THE PRINCE OF AMERICAN BEE-KEEPERS AND HIS CLOSED-END FRAMES.

It is with no little pleasure that I am able to present to our readers in this issue, not only a biographical sketch of Capt. Hetherington, but an article from his pen. This prince of American bee-keepers does things on such a magnificently large scale that the operations of the rest of us pale into insignificance. It is one thing for a bee-keeper to manage 100 colonies successfully, but it is quite another thing to make 1000 bring in to their owner clean cash. What shall we say, then, of a man who can manage 3000 colonies so successfully for so many years? Such a record is phenomenal. To my way of thinking, the feat of managing 3000 colonies requires more skill and forethought than the task of managing a whole system of railways.

A very large proportion of the captain's colonies are on closed-end Quinby frames—

the kind that many of the bee-keepers of the West used to think were first-class bee-smashers; but I have personally seen some of those York State bee-keepers handle colonies on these Hetherington-Quinby frames, and I know that they get through with their manipulation practically without bee-killing, and just as rapidly as we with our kind.

ADULTERATED HONEY HAILING FROM MEDINA.

AT the last convention, some one, I do not know who, brought in some bogus honey, labeled "Kellogg's Pure White-clover Honey." There was nothing strange about this; but when the last part of the label was read, "Medina, O.," a good deal of fun was poked at the members of the Root Co. who were present. And then Dr. Mason (that bold bad man) and a few others, were naughty enough to try to incriminate us. Yes, the doctor even asked me what *I* knew about it.

Joking aside, it is evident that some unprincipled concern is trying to "steal another's thunder." Medina, O., has come to be known as quite a center of bee-keeping interest, and the rascals who put out this "stuff" have borrowed its good name, and at the expense of the Root Co.

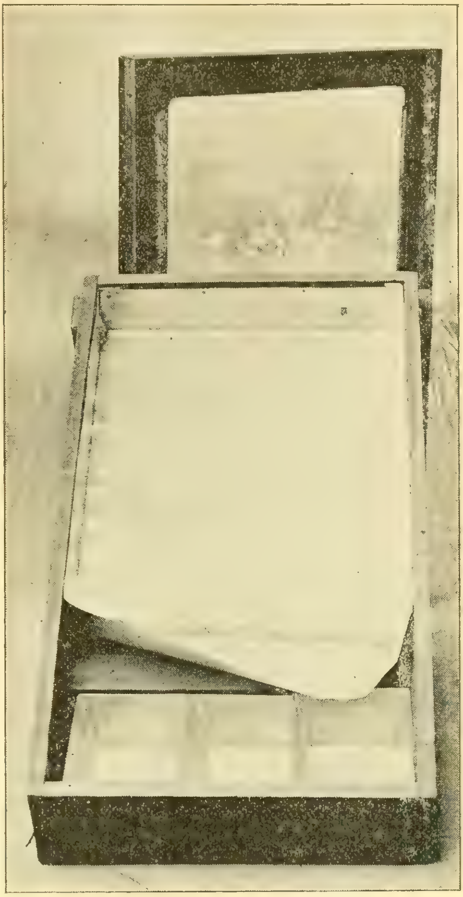
The honey in question was sampled by various members, and pronounced adulterated without doubt. It was analyzed by Mr. Selser, our chemist, and he pronounced it 75 per cent glucose, a certificate of which analysis I now hold in my hand.

You may be sure The A. I. Root Co. does not propose to let the matter drop where it is; and we shall be obliged if our subscribers in the West, where this bogus stuff is sold (and I understand it is sold all over the West) will give us a list of the stores where it is kept for sale, and the name of the firm that is putting it out. We will see if we can not get together enough material for a red-hot damage suit; for, no joking, we feel that our name has been damaged by such vile stuff going the rounds of the country. It is to the interest of every bee-keeper that mixers of this article, "Kellogg's Pure White-clover Honey," be brought to time; and we therefore call upon our readers for such facts as they can give us.

It is hardly necessary for me to state that there is no adulteration of honey in Medina, and never has been. We have only 2500 inhabitants; and if there is any kind of business like this going on we should know it in a very short time.

THE RAUCHFUSS SOLAR WAX-EXTRACTOR.

MR. FRANK RAUCHFUSS, of Elyria, Col., manager of the bee-hive department of the L. A. Watkins Merchandise Co., of Denver, Col., has made an improvement in wax-extractors. The Rauchfuss machine is a good deal like the Doolittle, with the exception that the wax is diverted to the right side into one of the three pans shown. This pan catches all the refuse and sediment, the same settling to the bottom. The pure free wax rises to the top, and overflows into the other two pans. The result is, when the wax is all melted, the wax in two of the pans, at least, is in marketable shape, while that in the first pan mentioned, after scraping off the sediment from the bottom of the cake, may be rendered again or sent to market. The L. A. Watkins Co. has sold these wax-extractors in preference to the Doolittle and other styles; and from all I can learn they are giving good satisfaction, because the wax, as soon as it leaves the extractor, is all ready for market without further melting up.



CAPTAIN J. E. HETHERINGTON, THE MOST EXTENSIVE BEE-KEEPER IN THE WORLD.

AFTER more or less investigation I have come to the conclusion that Capt. J. E. Hetherington is by far the most extensive bee-keeper in the world. He has been managing, and has operated successfully, too, in the neighborhood of 3000 colonies, probably for the last ten or fifteen years, and I do not know how much longer. There are, perhaps, a dozen bee-keepers in the United States who own and operate anywhere from 1000 to 1500 colonies;

but I think there is not one who reaches the 2000 mark, and certainly none that reaches the 3000, except that veteran who, in the civil war, rendered his country such distinguished service.

His record as a soldier is fully set forth in the A B C of Bee Culture, in the Biographical Department, and I need not dwell here particularly upon that, any more than to state that he was captain of a company of sharpshooters — a position that means a great deal more than to be captain of an ordinary company of infantry. Three times he was wounded, and finally was discharged on account of the disability from his wounds. At the close of the Gettysburg campaign his name was sent up to the War Department as one who had rendered gallant service for his country.

But it is of his record as a bee-keeper that I wish to speak more particularly. It may not be generally known, but he was the originator of the no-drip shipping-case that is now used almost universally throughout all civilized beedom. When we first introduced this case five years ago, it was brought to our attention by the commission houses, who urged upon us the importance of making our cases on the no-drip plan. Where it originated we did not then know; but after we gave bee-keepers a chance to get them they jumped almost into instantaneous popularity. I learned later that it was Capt. Hetherington who first began using them; and some commission houses, seeing the cases that the captain used, no doubt began to urge their customers to adopt them here and there, but before any bee-keeping-supply establishment had come to know very much of their merits.

Almost in the same way the tall section came into prominence. Where it came from, no one really seemed to know; but Mr. Danzenbaker, when he called at Medina, said he saw it first at Capt. Hetherington's. That the captain was the first to introduce it, I think there can be no question, for all the evidence points that way. Mr. Danzenbaker was so well pleased with the section and its selling qualities on the market that he immediately adopted it, and threw aside the 4½ square section which he had previously used in what he then called his Dual hive.

Indeed, after Mr. D. visited the captain he came back with a number of new ideas, and among them was closed-end frames; and in this connection I would say that Mr. Hetherington was the first man to make a really practical thing of closed-end frames. True it is that Mr. Quinby invented them, and came very near adding to them their finishing touches. But as Mr. Quinby originally used them in his particular form of hive, the frames were by no means as easily handled as in the particular form used by Capt. Hetherington; and from this originated the Hetherington-Quinby frame and hive that are used so much in certain sections of New York.

In these days, when the matter of transparency in foundation is so highly prized, it may be well to remember that Mr. Hethering-was probably the first to get out what was really the first transparent foundation. Those of us who bought the Vandeusen flat-bottom article years ago will remember how beautiful and transparent it was, and that nothing has been made of late years that was any clearer or more beautiful. Whether it had the same pliable qualities that are found in the Weed transparent foundation, I can not say.

It was Capt. Hetherington also, I believe, who first conceived the idea of incorporating fine wires into the foundation itself. A patent was granted, and for years the Vandeusens made what was called their wired flat-bottom foundation under royalty from Mr. Hetherington.

In the matter of fishbone in comb honey, it was Capt. Hetherington who first saw the importance of reducing the amount of wax in the base and putting as much as possible in the wall. We have talked a good deal about this of late, but really Mr. Hetherington was ahead of all of us in this.

Super springs, a device for pressing sections together while on the hive, and which have recently come into prominence, were the invention of Capt. J. E. Hetherington—at least he used them away back in 1872, and has used them continuously till this time. This one fact alone speaks volumes for their practicability; and it is strange that we of these latter days did not discover their value sooner. Mr. Danzenbaker first saw them used in California, in the apiary of Mr. Mendleson; but the springs he used were a little different from those Mr. Danzenbaker had placed in his comb-honey supers. And now it appears that E. P. Churchill was another one who had prior use of them; but Capt. Hetherington comes ahead of them all in point of time.

Notwithstanding the fact that the captain probably produces the largest crops of honey of any bee keeper in the world, there is probably no other bee-keeper on the face of the earth who puts out a higher-grade article of comb honey than he. There are certain buyers who will take his honey every year at 1 or 2 cts. a pound above the market; and the reason of this is plain. His comb honey is always in tall boxes, and put up scrupulously neat and clean in no-drip shipping-cases such as he himself originated.

Although he is now quite well advanced in years, I think I never met one who is more enthusiastic about bees and bee-keeping than he. A charming conversationalist, he fairly bubbles over with ideas. When he is present at a convention I always regard it as a rare treat to meet him.

I have felt for some time that this prince of bee-keepers was not receiving the recognition that he really deserves, and that some of the inventions we now so highly prize, and the product of his genius, should now be duly credited.

With all his other qualities the captain is an exceedingly modest man — rather shrinking from notoriety, and yet perfectly willing to contribute and help to elevate the pursuit; a busy man, he has no time to write letters; for his extensive business, unless he kept a stenographer, would hardly permit him to do much in that line.

OUR HOMES,

BY A. I. ROOT.

Your adversary, the devil, as a roaring lion, walketh about, seeking whom he may devour.—I. PETER 5:8.

Satan himself is transformed into an angel of light. II. COR. 11:14.

Continued from Oct. 1st issue.

In our issue for June 1 I spoke of the way in which Satan seems of late to get hold of people when they are sorely tempted—perhaps when they are worn out with fatigue and exhaustion. He seems to whisper to them that life is a miserable failure anyhow; that the great Father above is not a good father; and I am led to believe that people have at times yielded to his suggestions, and committed suicide when they had hardly thought of the matter before. He takes us unawares.

In the latter one of our two texts we are told he sometimes comes as an angel of light. I wish to give you something that illustrates this text especially. From away off in a distant land a letter comes to me that was prompted by these two articles I have alluded to, concerning demoniacal possession. A young man of excellent parentage and of excellent habits married a beautiful and talented girl, but she was afflicted with an incurable disease. If I am correct they were both professing Christians, and talked over the matter of her approaching death with coolness and calmness. During their married life both of them were somewhat acquainted with spirit-writing on slates; and, if I am correct, the wife promised the husband to communicate with him as speedily after death as possible, if, indeed, it were possible at all. Of course, this is no new thing. Many such contracts have been made, and perhaps quite a few good people think departed friends have sent messages to them in accordance with this promise. Within a few hours after the death of the dear wife he received messages purporting to come from her; and he further on discovered that no medium was needed. His own hand moved in response to some power unknown to himself, and gave him messages from the dear departed wife. We could scarcely call our friend insane over the loss of his wife, for while this thing was going on he had charge of a large and important business, and did his work well and faithfully. Unfortunately, perhaps, he roomed alone in a building by itself. In a little while he spent a great part of his time in communicating with his wife in the spirit world. I believe he made no confidant. Had he talked with somebody else about it, and told what he was doing—had some relatives been near him, he might have been delivered from the power of the evil one. Permit me to digress a little right here.

It was shortly before getting this letter that I read the book I have mentioned in our last issue. This book explains many queer phenomena of the mind by stating that every person has two kinds of consciousness (or unconsciousness, whichever it is). Some of our friends may remember that I have before this, in these Home Papers, ventured the belief that there are two sets of reasoning powers in every person. One takes care of the physical body as a sort of instinct. This "other fellow" is stupid and unreasoning; but the author of this book says that this *subjective* self has a memory away beyond the objective. That is why in dreams we recall things that we never should have thought of in our waking moments. Every act in life—almost every thought in life—is pigeon-holed and laid away by this other fellow. I would suggest that he runs the imagination. When a man is crazy, or is a somnambulist, this other fellow runs the whole thing. He remembers every thing, receives suggestions from everybody and everywhere; sometimes takes the reins, and makes people do things that a person in a normal condition never *could* do. When the objective self can be got rid of, this suggestive fellow produces the phenomena of hypnotism and clairvoyance—yes, and spiritism too; and yet the person may be honestly innocent of the whole matter. When our friend shut himself up during his leisure hours, and listened to the messages which he supposed were from his wife in the other world, he was simply letting this other fellow bring up incidents from memory in regard to the dear wife when she was with him, and thus make up talks that sounded exactly like her—in fact *were* her—by this wonderful faculty of memory, managed by this other intelligence I have been speaking of, so that it was really herself, though she was dead and gone; and it is not necessary to bring her spirit back to earth to explain the strange phenomenon.

With this state of affairs Satan very soon stepped in; and, dear friends, if you follow hypnotism, clairvoyance, mesmerism, spiritism, and slate-writing *anywhere* in *any* part of the world you will find Satan gets in his work sooner or later. Look about you and tell me if this is not true. In time our friend became so proficient in talking with his wife that he dispensed with the slate entirely. They talked back and forth by word of mouth. He probably talked out loud—I do not know. Through his mind he heard his wife answer.

A time came one bitterly cold night when Satan's cloven hoof betrayed his presence. The spirit was so unlike that of his wife that he protested, and she (or Satan rather) admitted that it was some other individuality, and said that his wife was in torment, and he was the cause of it. Our friend, who was a Christian man, prayed for help, and help and deliverance came. He slept in peace, and supposed the delusion was over. But the Devil had not got through with him. The next day our friend longed for the presence of his wife again, and tried to see if she would not come back and explain. But this time *still another* spirit answered him, and said that his wife was suffering from something like insanity because she persisted in clinging to him and to *earthly* things. Our text tells us that Satan sometimes comes as an angel of light. In this case he put on the appearance of an angel of light (personating the good and gentle wife) for perhaps many weeks or months; but when our friend began to pray to Christ Jesus for deliverance, Satan made a retreat as he always does. Now, this friend should have let the thing entirely alone when he once saw the devilish side of it. He did not do so, and, like Adam (and therefore Eve and all their descendants since that time), he was sorely punished. The *new* personality assumed to be a friend of his, as I have said—a mutual friend between him and his wife. He seemed to be intelligent and high-toned; and, by the way, the Devil must have gotten a very tolerable education somewhere, coming down along the ages. One may have *every intellectual attainment*, and still be possessed of the Devil. Our victim soon learned to converse with his new spirit-friend at any time, even during his work. They carried on mental conversation. Perhaps many of my readers will say right here, "Why, the man was crazy, or was going crazy." Well, very likely this is true; and if the Devil is not at the bottom of all insanity he has at least a good deal to do with much of it.

I can imagine here that the arch fiend concluded that he had wasted time enough on our poor, honest, deluded brother, and that he had better bring things to a crisis, and either get him for his own or give him up. One very cold night in winter this new friend reproached him for having got his wife into her great trouble, and was yet unwilling to do any thing to get her out. Of course, he resented this, and said he would do any thing to help her. The question came, "How much are you willing to endure for her sake?" Like a true husband, he answered he would give his *life* if need be; that for her sake he would "go through fire and water," as the expression goes. The spirit took it up at once and said, "All right. Hold your foot over the glowing coals in that stove so many minutes, and your wife will be delivered from all her torture and suffering."

Now, our friend should have rejected this at once, and have called on Christ Jesus for deliverance. But his wife joined in. He actually heard her voice, beseeching him in agony to *endure* the pain for just a *few minutes*, just to rescue her from the fires of hell *for eternity*. The Devil here betrays his ignorance, or, better still, *willful* ignorance, of the real statements to be found in the Scriptures. We might expect a man in the possession of his senses to see the absurdity of this whole thing; but his wife's groans and tears and screams, if I have it correct, pushed him on. This transaction happened in the middle of the night. Finally, in response to the importunities of his wife and the friend who stood by—that is, the spiritual friend—he got up, put his naked foot in the stove, and held it there until he became crippled for life. I should hardly dare to put in print his description of the torture he felt during those moments. Then the spirit said, "You have gone through fire; now go out and stand in the snow so many minutes," for it was toward a zero temperature. Of course, the next step on the program was suicide. That is where Satan winds up, and never winds up until he gets his victim, soul and body, unless some power greater than his own intervenes. This friend had been delivered by Christ Jesus once before. Now something whispered that he was truly and unerringly treading the road to hell. With his poor crippled and charred foot he stumped back into the house, fell down on the floor, and begged God's forgiveness. He lighted a lamp, got his Bible, and renounced at once and for ever Satan and all his swindling gang. You see Satan had put into his mind a distorted idea of sacrifice; that is, by giving his life, and by being voluntarily *burned at the stake*, as it were, he was going to purchase deliverance for the one he loved—one whom he loved, I fear, more than he loved Christ Jesus. By the way, at the time the demon suggested suicide he undertook to cast ridicule on Christ; and perhaps it was through this blunder (for Satan *does* blunder, thank God, at least sometimes) that he had his deliverance. He was satisfied then that the spirit that was leading him was really at enmity with the Savior of the world. But after our friend came to his senses, enough at least to go at once to a physician's and take treatment at a hospital, the Devil made desperate and terrible efforts to get him to commit suicide. He told him he would be the laughingstock of the world; that everybody who saw him stumbling about or walking on crutches would find out all about it; and the sooner he put an end to his existence the better; in fact, it was the *only* thing to do. Then he realized, through the light of the Bible and that of the dear Savior (now his only friend) that he *was* on the verge of insanity. My friend, you have during your life, perhaps, had similar struggles with evil; but you know nothing of the conflict this man went through with to hold his reason. If he let go, Satan would be sure to get him out of the world. God heard his prayer, and warded off the insanity that had been so well started. Through Christ Jesus he braved it all, went and laid the whole story before the nearest minister of the gospel, and solicited his help, for he had to have help in a time like that. His wife's voice also was ringing in his ears, remonstrating and protesting. If ever a man lived who found it next to impossible to say, "Get thee behind me, Satan," it was this poor friend of ours. He was tempted to throw himself before railway trains. All the methods of committing suicide that had been heard of or read of pushed themselves into his mind. But he held fast to special Bible promises. Perhaps he realized, as few of us do, something like the following: "When thou passest through the rivers they shall not overflow thee."

It was finally decided that amputation was not necessary. The Devil kept nagging him, advising him not to go near a *Christian* institution. Our friend actually begged the doctors to give him morphine to see if it would not drown his agony. Thank God, the doctors were sensible. The morphine would have given him over to Satan or to insanity, and would have proved to be Satan under another disguise. The Christian doctors gave him Christian treatment and Christian advice. He did not suffer amputation, and perhaps many would not know that he was a cripple. One text that gave him great comfort at this time was, "The Lord knoweth how to deliver the godly out of temptation." But in answer to this, Satan would keep putting in "But you are not godly; you are not one of his." If I am correct, these events happened some years ago; but the writer says he thinks he could hear these voices at any time, even *now*, if he were to call them back; and this illustrates once more how evil habits or bad associations *cling* to a man all his life. I wrote, imploring him, for God's sake, not to touch, taste, or handle this thing any more.

Now in regard to the latter of these two texts. Spiritism, and, in fact, all other isms (including the new ones), almost always start out by claiming they are in full accord with the Bible. Of course, they will tell you that the Bible has always been misunderstood, and that their doctrine is the first thing that has ever come up that really took the Scriptures just as they mean. Then they quote extracts from the Bible, and make things appear exceedingly plain, honest, and right. It is indeed astonishing to see with what subtile ingenuity Satan puts on an appearance of being a good man. Why, he actually *loves* righteousness, and *hates* iniquity from the very bottom of his heart. No wonder that young people (and sometimes those who are old enough to know better, also) are drawn into his snares. But sooner or later you will run on to something very much as our friend in his touching story did. In Pilgrim's Progress you will remember Christian was persuaded there was a better path—not so many quagmires and difficulties to encounter. He found the new path very plain and very plausible for a time. Finally a great rock stood towering above his head; and when this rock began to totter with hidden fires and rumblings he was afraid. He told his deliverer he feared the great rock would tumble down upon his head; and then he retraced his steps and got back into the straight and narrow path. So it is with these new things. There may be bad work with our established churches. Even the dear Savior himself had one Judas in his little company; but when somebody tries to explain to you that there is a better way than our orthodox churches, and a better rendering of the Bible than our regular ministers of the gospel understand, then you may be sure it is Satan who has got hold of you, and that he will, sooner or later, slip off his garment of light, and betray the cloven hoof. How shall we know when we are right? do you ask? Consult your Bible, and kneel to God in prayer, just as our poor crippled friend did; and remember that the gospel of Christ Jesus never enjoined anybody to keep his religion all to himself. Not only are we to hold fast to our Bibles and to daily prayer, but we are commanded by the Scriptures to be on intimate and friendly terms with our neighbors and with our fellow-men. No man is safe who does not confide to and be advised, at least to a certain extent, by his friends and neighbors. I am satisfied, in fact, that it is really dangerous for anybody to have no intercourse or counsel with his fellow-men. In troubles like these, be sure to make some minister of the gospel, say the pastor of the nearest church, your friend and confidant. Your family physician, if he be a godly man, would come next; and I do not know but I would make him a friend and confidant—that is, to a certain extent—even if he did not happen to be all we should like in the way of godliness and righteousness. May God help *you*, dear friend, to beware of that great adversary to all humanity, who really does go about as a roaring lion, seeking whom he may devour.

Before concluding this warning, permit me to mention that, on one of my travels, I became intimately acquainted with a man who, I was told, was a great drinker. Just before leaving him I broached the subject. He admitted it, and gave as an excuse that, years before, he became entangled with the spirits in slate-writing. This I knew to be true, for I knew of him. He said that nothing but drink would drive them away, and that was why he drank. In this case, if the remedy was not *worse* than the disease, the disease must truly have been a bad one. Should these words be the means of holding out a kindly caution to any reader, young or old, to beware of this thing that has entangled and broken down thousands of some of our best intellects, then I shall not have written in vain.

ZION TABERNACLE AND LEAVES OF HEALING.

Dr. Dowie seems to be getting beside himself. We notice by the Chicago *Record* that he has recently been attacking Moody, and calling him names after his fashion, and finally wound up with a tirade of abuse against his own people in Zion Tabernacle because they did not hand over their tithes to Dowie himself in a way he thinks they ought to do. It almost seems as if Satan must be prompting him when he hurls epithets at everybody, right and left, as he is hurling just now. The only complaint that he has against Moody, so far as I can gather, is that Moody has been putting out a friendly hand toward the Roman Catholic Church. And, by the way, some very good Christian people have complained because the Anti-saloon League is joining hands with the Roman Church in temperance work. Perhaps these good people had better remember what the Master said to his disciples when one not a member of their own company was casting out devils. Jesus said, "Forbid him not; for there is no man which shall do a miracle in my name, that can lightly speak evil of me. For he that is not against us is on our part."

I have just been reading your 'round up" of the "heathen science" and electric frauds. You can not hit them too hard. The *Central Christian Advocate* still carries the Oxydonor and Electropoise advertisements. C. F. NEEDHAM.

Leavenworth, Kan., April 23.

HIGH PRESSURE GARDENING BY A. I. ROOT.

CAULIFLOWER AS A HONEY-PLANT.

A Glimpse of the Only Spot in the United States where Cauliflower Seed is Raised by Field Culture.

This photograph shows part of a six-acre field in full bloom, with the men just tying them up to stakes, and one man watering with 3-inch cotton hose, with your humble servant watching the Italians just swarming over the bloom. It's one of the best honey-plants that ever grew out of the earth. I have grown figwort and other honey-plants recommended by A. I. Root several years ago, but none could compare with the cauliflower-blossoms to produce honey. I have covered up a plant in the afternoon, and found the next morning the little cups just running over with thin honey, and the large lower leaves completely wet with the nectar. The field has the appearance of half a dozen swarms in the air at once, or a good smart start at robbing. The honey is a light amber in color, and of a most delicious flavor. So you see I raise two crops the same season—a crop of No. 1 honey and a crop of cauliflower seed.

Fidalgo, Wash. H. A. March.

In addition to what friend March has said, permit me to say that the whole plantation, and especially the glimpse of our good friend March himself, gives me a thrill as I think of my pleasant visit to Puget Sound a few years ago. I suppose our readers will be astonished (with myself) to know that cauliflower grows up tall, and sends out branches like a tree, as seen in the engraving. At the right of the picture, in the background, you get a glimpse of the home-made reservoir constructed by friend March himself. This reservoir is kept full by a beautiful spring. I have told the story once before, but I think it will bear telling again.

Friend March had just begun to make some money at market-gardening, quite a good many years ago, and his neighbor looked on and became jealous of friend M.'s success. If I am correct, the neighbor lives over in that house by the woods, off to the left in the picture. Well, the spring that furnished the water for irrigating the cauliflower-fields was on this neighbor's land, and he turned it off another way, cutting off the water supply. I suppose that, by going to law, friend March could have claimed the water that originally ran over on his premises. But he is a peaceable man, and thought he would rather waste a little money in digging into the side-hill along *his* side of the division fence than to quarrel with a neighbor. So he set his boys at work digging a ditch along the fence in the background, that runs uphill into the woods. They found a little water, but not enough for his needs. Then he told them to keep on digging, and go down pretty deep. They worked at it by odd spells until they got down into the hill perhaps six or eight feet deep, and may be more. I know it is an awfully deep ditch. One day our old friend came along by his reservoir, and saw a big stream of water coming down the ditch. He supposed the boys had dammed it up to keep it out of the way, and had just let it loose. He was just thinking to himself, "Now, I would give a clean thousand dollars to have such a stream of water as that right along all through the summer." But he dismissed the thought, thinking it among the impossibilities, when he was startled by hearing the boys yell; and, looking up, he saw them swinging their hats. It was no letting-off of the dam, but a permanent stream; and the funny thing about it was that, in tapping this big stream, they cut off the neighbor's supply entirely, and left him, as it were, "high and dry." Well, I suspect there might have been a chance for a lawsuit on the other side of the house; but friend March very graciously divided the stream and gave the neighbor all he wanted of it; and that stream of water seems to be running even now.

The cotton hose friend March alludes to, and which is now in use more or less all over the world, was first planned years ago by our veteran grower of cabbage and cauliflower seed.

I am very glad indeed we have been enabled to get such a beautiful picture of this unique seed-growing farm. If I am correct, there is not another spot in America, and perhaps not in the world, with a long even-tempered season, supplying just what is wanted for the production of the very best strains of cauliflower and cabbage seed. If it were not such an awful distance up to Puget Sound I do not know but I should have started, on receipt of the above picture, to see the golden Italians humming over the blossoms of the Snowball cauliflower seed. By the way, cauliflower needs lots of water almost every day in the year. The peculiar damp climate of Puget Sound furnishes it naturally in the winter time; but during the summer they often have quite severe drouths, and nothing but such a spring of pure soft water would carry the seed-growing industry clear through the season without any hindrance from drouth.

Now, friends, the picture shows you what H. A. March has accomplished by years of toil away out in the woods in that new country. Now, do you *know* there is not a spring to be found somewhere in the hillside near you? and if there is, have you got the energy and go-ahead to develop such a plant and such a reputation too as H. A. March's strain of seeds has secured?

Yes, there is another little story I wish to tell. Just notice how well our veteran friend holds his age. He is conducting a profitable business, even if he is toward 70 or may be beyond it. Well, when he was but a little over 50 he thought he was broken down and played out. He was so nervous he could hardly write his own name. Do you ask what made him young again? Why, he gave up his tobacco for a Simplicity smoker, and in a few weeks' time his hand was as steady as if it were made of cast iron; and with the money he had previously used to buy tobacco he purchasd about as pretty a library of good and useful books as you are likely to find in any home in our land. What sane man would think of dying of old age before he is 60, when he might just as well be vigorous, bright, and hardy for 20 years or more longer?

CAULIFLOWER-FIELD IN FULL BLOOM, BELONGING TO H. A. MARCH, PUGET SOUND, WASHINGTON.

HOME MADE WINDMILLS.

The above is the title of a bulletin issued by the Agricultural Experiment Station of Nebraska; or, rather, the title is, "The Home made windmills of Nebraska." It is a book of 78 pages, including a great many beautiful illustrations. Although I am greatly interested in almost all publications from our experiment stations all over the United States, I do not think I ever saw any thing that took hold of me as does this one. Why, the book should be worth thousands of dollars to the farmers in every State in the Union. I can well conceive how a single copy may be worth hundreds of dollars in just one neighborhood by being passed around from farmer to farmer. Perhaps I am over-enthusiastic; but let me tell you what I know about this business. When I was a boy of fourteen or fifteen I made a windmill that did the churning, and did it nicely. It would have pumped water if we had had a pump. In my travels I have seen a great number of these cheap mills doing excellent work. In South Dakota there are hundreds of them. The book gives pictures of mills in actual operation, and tells where they are located, and also what it cost to make them. And, by the way, there is an important point right here. In talking with young farmers, especially those who are just making a start in fruit-growing and gardening, how often we hear the lament, "Yes, I know it would save me lots of time and lots of muscle if I had a cheap windmill to do our pumping; but there are so many other wants I really can not afford it. There is a mortgage on my farm; and although there are many different ways in which we could be greatly helped by the expenditure of a little money, I do not dare to go into it till the mortgage is paid off." The above I hear again and again; and I think the young wife and husband are right in keeping down expenses. But, dear friends, this bulletin tells how you can make a windmill that will do a pile of work for you, without costing hardly a cent of cash outlay. There is hardly a farmer but has time stormy days, or during winter, to make a windmill; and with regard to the material, let me quote a part of one chapter from the book:

> THE JUMBO WINDMILL.
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> The Jumbo mill, or Go-devil, as some call it, is very much like an old-fashioned overshot waterwheel. It is simply a sort of overshot windwheel.
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> We have taken the liberty of putting it in the lowest group of mills, where it probably belongs, although in talking with their owners it is plain that they defend these mills, and would put them in a higher class, all of which speaks well for this simple and useful mill. However, as a matter of fact they are probably the least efficient type.
>
> This much must be said, that they lend themselves readily to construction, being very simple in design. Furthermore, almost any kind of material may enter into their make-up, so they are economical. We have seen old lumber, lath, shingles, split rails, old packing-boxes, barrel-staves, coffee-sacks, and even the tin from old tin roofs, pressed into service in the construction of these mills. We even found the tin can doing service in this capacity, for one farmer living near a small town found hundreds of old tomato-cans in the dump near his place. Raking these into a heap, and covering the same with straw, which was burned so as to unsolder the tops, bottoms, and sides of the cans, this farmer found himself with several hundred pieces of tin which he nailed to the loose sides of his Jumbo box. This was counted an interesting case; and others might be cited, but this is quite enough to verify the statement that these mills can be constructed largely of old or even of waste material such as is common to almost any farm. If the Jumbo can not be built cheaply, and by one's own labor, it were better not built at all. This is not literally true, for any mill is better than no mill, but some other form of mill could be chosen to advantage.
>
> The Jumbo mill can be used advantageously, as is illustrated by its practical operation all over the State, to pump water for the house, or for the stock, or for the irrigation of small patches of orchard or garden. For the irrigation of large tracts it may not amount to much; but touching this point it may be well to remember that if one small Jumbo can irrigate a small patch, several large Jumbos could irrigate a much larger one.
>
> We have seen the Jumbos varying in size and strength from those at work pumping water for the irrigation of the garden of a town lot up to those which were irrigating ten acres of orchard. If this much is already possible, more is to be expected. Several Jumbos, if well built, would do not a little service in field irrigation, especially if the water were first pumped into a storage reservoir, and thence into the furrows. And its usefulness might be still further enhanced by using it steadily during the fall and winter in order to get the ground well soaked.

I suppose this windmill bulletin is sent free of charge to every applicant in Nebraska; but I can not learn anywhere from the bulletin how people living in other States can get it. You had better send a postal card to the U. S. Agricultural Station, Lincoln, Neb., and they will tell you how to get it.

The book is doubly interesting to me in that it offers nothing for sale. The author is Erwin H. Barbour. He has traveled miles and miles just to see these home-made windmills, and a lot of money has been expended in getting up the book. I do think the Department at Washington should have this book reprinted, and spread gratuitously all over Uncle Sam's domain. It is a grand object-lesson for the boys. It tells not only what can be done in the way of utilizing wind power, but it also gives wise instruction as to what can *not* be done. I wish to express my thanks to Mr. Barbour for the grand work he has done so well, and I wish to take off my hat and make my best bow to the whole State of Nebraska.

Perhaps I might add that I knew our Nebraska friends were at work on this bulletin; in fact, it has been my privilege to talk the matter over and urge upon them the importance of it. Where a man's time is all occupied, and he is getting good or fair wages, very likely his best way is to buy a windmill made at a factory. But farmers and others who have spare time during stormy weather, and a limited amount of cash, should by all means have some sort of windmill to pump water and do lots of work around the house.

THE SEVERE FROST ON THE MORNING OF OCT. 1, ETC.

I said in our last issue that we were getting 1½ cents per lb. for Concord grapes. Before half of them were sold, however, the price went up to 2 and then to 2½ cents, and we got the latter figure for a large part of them. After the severe and killing frost on the morning of Oct. 1, the price went up still more; and, by the way, I do not know that I remember a season before when the first frost, hard enough to kill tomato-vines, injured grapes. We have been in the habit of saying that grapes are never really sweet until they have been through one pretty good frost. But this time they got "sweetened" with a "vengeance." They were frozen as hard as bullets, and some of them actually burst open. Of course, there was not any more growth of potatoes after that severe frost; but we grew a second crop of the Triumph, and the vines all died down before the frost "happened." This year the frost came rather earlier than usual.

Our buckwheat, sown about the first of August, is, so far as seed is concerned, mostly a failure. There was considerable ripe seed when the frost took it, but I judge not enough to pay for harvesting. There is enough, however, so the hens are having quite a picnic in picking the grain from the drooping heads. I should have had a magnificent yield if the frost had held off ten days longer. But as it is, it will make a splendid mulch for the crimson clover that just looks handsome as it peeps through the blackened stalks of buckwheat; and besides the crimson clover, we put in a sprinkling of turnip seed. The turnips look, too, as though they were very well pleased to have the buckwheat and pusley get out of the way with such alacrity. All three crops were sown on our rich creek-bottom potato-ground, and somehow pusley has got in of late; and around the edges of the field, or wherever there is a place, the pusley was making a most enormous growth, and I really thought of having one of the men clean it out, because it looked so bad, only about a week ago. But the pusley is not anywhere now; so you see a frost helps to get rid of a good many pernicious weeds. Well, I imagine the pusley and buckwheat are going to be just the sort of mulch the crimson clover needs to have it do its very best. There is plenty of moisture now, and I do think crimson clover is about the handsomest shade of green I ever saw anywhere. The buckwheat was growing so rank it was rather crowding the clover, and I began to doubt somewhat the expediency of having two strong-growing crops on the same ground; but now, you see, I am all right. If we had poultry enough to gather all the grain, there would not be any loss; but I suppose the ripened grain will be worth something as a fertilizer. I once plowed under a crop of mammoth clover to sow to buckwheat. The clover was full of seed, and a neighbor told me the clover seed would be worth more than any crop of buckwheat I could grow; and I have always thought that that clover seed had something to do with the enormous crop of buckwheat that I took off from the ground in a very short space of time.

We are just now getting in wheat where we dug our potatoes. The first week in October is a little late, but with our rich ground the wheat will be strong enough; and next spring I am going to sow mammoth peavine clover on the wheat, and get the biggest growth I possibly can, and then plow every bit of it under for potatoes. I saw it stated somewhere, that where anybody wanted clover to plow under, and for no other purpose, and did not expect to cut or feed a leaf of it, peavine clover is *the* clover above all others.

POTATOES UNDER STRAW.

The experiment that I had hoped so much for was a good deal injured in result by the severe drouth, as I have mentioned; but it has given me some pointers. The potatoes are of excellent quality, nice shape where the straw was in sufficient quantity, and almost entirely free from scab and blight. July 12 the boys found two Rural New-Yorker potatoes that had been overlooked. They were wilted, sprouted, and not at all in good order; but we cut them to one eye, and planted them near the strawstack, under the damp rotten straw. I noticed once or twice they had sent up some very thrifty shoots, and were growing quite well. When digging the potatoes out of the straw the boys were surprised on finding a dozen or more of the handsomest Rural New-Yorker potatoes—in fact, the handsomest potatoes I ever saw in my life of *any* kind. They were as clean and white as water would wash them, and as round and smooth as an apple. For some time back I have been wondering what a potato would be like if it could expand in all directions without any pressure from the earth surrounding it. Well, here we had it—the natural shape of the potato when grown without hindrance from any environment. These potatoes grew in about 72 days (the frost came Oct. 1st), and their growth was almost all made right during the drouth. Now, I am going to try that over again next year. The straw that we have used this year will answer all right another season, I am sure, at least so far as it goes; but I think I shall cultivate the ground and work it up nice and mellow under the potatoes so the roots can get down into the earth if they want to. Then I am going to have straw enough to keep them damp and cool all through the season; and, finally, I am *not* going to have the chickens working in it next year as they did last. The greater part of the potatoes were right near their quarters; and one day they would hoist the straw one way and the next day the next. By the way, what an *awful* amount of muscular work an enterprising hen will do in one day, any way, especially when she finds some rotten straw or chaff to dig or scratch in! All around the poultry-house they pulled the straw off from the potatoes so persistently they were not only greened but *browned* by the hot sun. This spoils them for eating, but it will not hurt them for planting. The Rural —or better still, perhaps, Carman No. 3—is an especially nice potato, I think, to put under straw. The tendency is to grow handsome in shape any way; and under rotten straw they would have a big chance to sustain their reputation of being the handsomest potato, both in size and shape, that the world has ever seen.

MAULE'S COMMERCIAL POTATO.

In just two years I have grown 40 bushels of these potatos from one potato to start with. The yield was certainly fair. The potatoes were large, and some extra large; and if it had not been for Carman No. 3 right alongside of them I should have been quite enthusiastic over the Commercial. The Carman was fully equal in yield, and ever so much better in shape. The Commercial is generally disposed to be prongy, and the eyes are very deep, and in quality it is not equal to the Carman.

Tobacco Column.

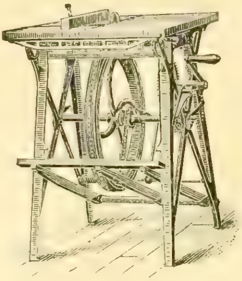
HONEST AND CONSCIENTIOUS, EVEN THOUGH CONQUERED BY A BAD HABIT.

Mr. Root:—You will find inclosed $1.40 for payment on the smokers you sent me for my friends G. J. Potter and L. M. Potter as a reward for their quitting the use of tobacco. I feel differently about the matter now, and think that the above is your due. They paid me for the smokers, and requested me to pay you for the same. FLOY POTTER.

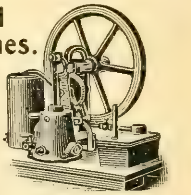
Silver Creek, Mich., Sept 29.

Dear friend P., I rejoice to know your two friends are straight and square men, even if they have gone back to the tobacco habit; but I hope and pray that they may change their minds, and for the sake of health, if nothing more, give up the weed after all. Let me tell you a little story—something that happened right here on our premises, and you may tell the story to your two friends. The man who files our saws, Mr. Albert A. Herkner, has been for many years in poor health. He consulted different doctors. One called it stone in the gall-bladder, or something like that; another, heart-disease, and I guess they did not know exactly what did ail him. He kept having his bad spells every little while for two or three years. Finally, some time in the summer, he had to give up work entirely, and it was talked around among his friends that he probably never would do another day's work for The A. I. Root Co., or for anybody else, for that matter, in this world. We all felt sad about it, and a new saw-filer was installed. But he greatly needed a little instruction, especially in regard to using the saw-filing machine, by Mr. Herkner himself, and we accordingly asked Mr. H. if he could not get down to the factory long enough to tell the new man something about the new work. One day I was greatly surprised to see him on the street, looking fairly well. I stopped my buggy, and asked him to get in and ride. Then I began to ask him what doctor or what means had been used that he should be so much better. What do you think he said? Why, it is the old story. His last doctor was sensible enough to tell him that, in his opinion, it was the *tobacco* he used that was killing him, and that he would have to make his choice and do it soon—to go on with his tobacco, just as he was doing, and *die*, or give it up and *live*. The doctor told him he had tobacco heart, and the announcement waked him up somewhat. He said if *that* was the case he would stop then and there, and stop *entirely*. He did stop, and gained so rapidly that in two or three days he was out on the street, and has been at work a good deal of the time for ten hours a day for several weeks. He says he has a terrible fight with the old habit, but physically he is gaining strength every day. He seems glad to talk about it, and to tell his friends his experience, and has given me permission to tell it here in print.

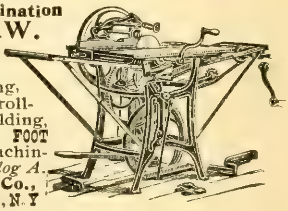
A particular friend of mine who takes care of my teeth, in speaking of Mr. Herkner's case said he too had quit the use of tobacco in all shapes. He said he was getting to a point in life where he needed all the nerves there were to be had—that is, in order to do his difficult and intricate work as it ought to be done—and he had satisfied himself that tobacco saps the nerves of life more than any other one thing. Well, there are several more right around here who are getting very rapidly to this very point, where it is a matter of life and death. No doctor can do any thing for any man when tobacco is killing that man, unless he gives up its use; and our best physicians are asking their patients, "Which will you do—use tobacco, and *die*, or give it up and *live?*"



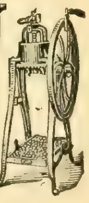
Barnes'
Hand and Foot Power
Machinery.
This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, boxes, etc. *Machines on trial.* Send for illustrated catalogue and prices.
W.F.& John Barnes Co.,
545 Ruby St.,
Rockford, - - Ill.
In writing, mention Gleanings



Pierce FARM Engines.
3-4 and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. **Pumping Engines** all sizes.
Send for circulars stating size and for what use.
PIERCE ENGINE CO.,
BOX 17, Racine, Wis.
In writing, mention Gleanings.



Union Combination SAW.
For Ripping, Cross-cutting, Mitering, Rabbeting, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line **FOOT** and **HAND POWER** machinery. *Send for Catalog A.*
Seneca Falls Mfg. Co.,
44 Water St. Seneca Falls, N. Y.
In writing, mention Gleanings



HENS LAY BEST
—in fact they lay double the eggs winter and summer when fed Green Cut Bone.
Mann's New Bone Cutters
cut all hard and soft bones, meat, gristle, &c., fine, fast and without choking and run easy. Clover cut with our Clover Cutters helps wonderfully. Mann's Granite Crystal Grit and Feed Trays too. Catalogue FREE.
F. W. MANN CO., Box 37, Milford, Mass.
In writing, mention Gleanings.

Some Inducements

To Subscribe for the Review.

I have found that it pays to offer some little inducement to a man to become a subscriber to the Bee-keepers' Review. Nothing in this line has met with greater success than the offer of back numbers of the Review. Back numbers of the Review are different from those of newspapers and some journals. The information that they contain is just as valuable now as when first published. Each issue of the Review, especially if devoted to the discussion of some special topic, as is the case with all of the copies printed during the first five or six years of its existence, is really a little pamphlet containing the best thoughts and experience of the best men upon the topic under discussion. Some issues are now out of print; of others only a few remain; while of others there is still a good stock on hand. Instead of letting these back numbers lie on my shelves, gathering dust year after year, I think it better to use them in getting new subscribers, and at the same time have them out doing good. I shall, therefore, as long as these back numbers hold out, send 12 of them free to each one who sends me $1.00 for the Review for 1900. The selection of these back numbers must be left with me; but I will see to it that no two are alike. In addition to these back numbers, all new subscribers for 1900 will receive the rest of this year free. The sooner you subscribe, the more you will get.

W. Z. Hutchinson, : : : Flint, Michigan.

WESTERN SUPPLY DEPOT.

We carry nearly a full line of A. I. Root Co.'s supplies and Danzenbaker hives. Are prepared to ship promptly at factory prices.

Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

FOR SALE.—$400; easy terms. Ten acres improved. Suitable for bees, poultry, fruit, and gardening; fine bearing peach-orchard; plums, cherries, pears, figs, and strawberry-patch; adjoining the magic city of Fitzgerald, Ga.; old soldiers' colony. The fruit will pay for the place in two years. Climate fine.

Enquire of K. L. CHERRY, Fitzgerald, Ga.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

BEE=SUPPLIES.

ROOT'S GOODS--ROOT'S PRICES

Langstroth hives, Muth honey-extractors, etc. WE carry a complete line of Root's goods and sell at their prices.

Muth's Square Glass Honey=jars

are just the thing you want *now* to develop your home market for your extracted honey.

To Parties in the South

we offer a big saving in freight, send us your order and be convinced. Catalog for asking.

C. H. W. Weber, 2146 Cent. Av., Cincinnati.

Successor to Chas. F. Muth & Son and A. Muth.

BEE-SUPPLIES!

ROOT'S GOODS AT ROOT'S PRICES.

Pouder's Honey=jars, and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

W. S. Pouder, 512 Mass. Av., Indianapolis, Ind.

SAY! Did you know the **Western Bee=keeper** has changed hands? C. H. Gordon is now editor and publisher. . . . .

Wanted! Every bee-keeper, large or small, to send 15c for 4 mos. trial. Sample copy free. .

47 Good Block, : Denver, Colorado.

In writing, mention GLEANINGS.

Don't Buy Supplies

Until you see my 39th annual catalog. A full line of hives and fixtures best adapted to our New England climate. Also best brands of **Comb Foundation and Section=boxes.** I have also made arrangements to keep quite a general stock of

A. I. Root Co.'s Goods at their prices.

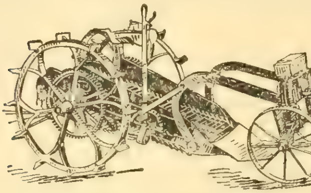
Parties desiring these goods can get them of me, and **save freight charges.** Bees, Queens, and Nucleus Colonies from the **very best strains** in America. A forty-page illustrated catalog free. Address

W. W. Cary, Lyonsville, Mass.

Every Wide-awake Progressive Bee=keeper will surely take advantage of A. T. Cook's reliable offer on page 743. Do not on any account miss it.

Advertiser's Department of Short Write-ups.

How are you Going to Dig your Potatoes?



It is time in most places to be digging potatoes; and, in fact, in some places it is past time. If you want something that will put the potatoes *all* on top of the ground, and do it, too, with one good strong team, you probably can not do any better than to use the Dowden potato-digger, made by the Dowden Mfg. Co., Prairie City, Iowa. Drop them a postal card, and they will cheerfully give you all the particulars, answering every question anybody will probably ask in regard to the machine. Mr. A. I. Root, of The A. I. Root Co., is using one with excellent satisfaction in digging his crop of potatoes grown expressly for seed.

Francis H. Leggett & Co

We have just received a copy of King's Views of the Dewey Reception in New York City, and in looking over the reception committee we find the name of Mr. John C. Juhring, also the portrait of Mr. Juhring in a list of the representative citizens of this committee. Mr. Juhring is a member of the firm of Francis H. Leggett & Co., whose ad. appears on the second page of GLEANINGS. Our readers have doubtless noticed this ad. in previous issues, and it gives us pleasure to call particular attention to this.

The writer was in New York a few weeks ago, and while there called at the establishment of Francis H. Leggett & Co., and was very much pleased, not only with their house but with their business methods. They are very modest in their claims, and if their honey reports as quoted from time to time in our Honey Column are made up on the same principles that we found there they will not be misleading in the least. Messrs. Leggett & Co. have large dealings in foreign countries as well as in the United States. They have already filled some orders for foreign shipment that we were not able to handle ourselves. Mr. Harry E. Wood, the manager of the honey department, is studying the requirements of the trade very carefully, we believe. We first met him at the Philadelphia convention.

We take considerable pride in our advertising columns, seeking to have only first class houses represented; and, having met these people personally, and because of our satisfactory business relations with them, we take pleasure in giving them this introduction to our readers.—A. L. B.

More About the Poultry Business.

There is just one occupation that almost anybody can go into without experience, and almost without capital; yes, and he can commence in the business in the morning, and have something to sell by night. Furthermore, any man, woman, or child can make a start with a reasonable hope of success. It is the poultry business. If I am not mistaken, somebody said the poultry in the United States is worth more money than all the cattle or all the horses or sheep. You see, only a comparatively few people have horses and cattle, but almost everybody has some chickens, and raises eggs. Well, since my notice of the poultry catalog in our last issue my attention has been called to two other beautiful catalogs. The first one comes from the Columbia Incubator Co., Delaware City, Del. On the outside there is a very beautiful colored picture of a girl feeding chickens, ducks, turkeys, etc. Inside are exceedingly fine half-tone pictures—veritable photos—of more than a dozen views of their factory. By the way, when you see one of these photos of a place of business you may be pretty sure it is true, and no put-up job. There is one picture of Pekin ducks—ducks by the hundreds and may be thousands—that you will really enjoy looking at. Incubators made by this firm are claimed to be absolutely fire-proof.

Another very nice catalog from another part of the country is that of the Des Moines Incubator Co. This is a good-sized book also, containing lots of valuable information and many fine cuts. This catalog, like the one mentioned in the last issue, contains a large amount of valuable information. For instance, on page 92 I read, "Glass should never be put on the roof of a poultry-house, always under the eaves." This thing I learned by costly experience some years ago. I had a poultry-house with a glass roof like a greenhouse. It was too hot for the fowls unless watched almost constantly, and I took off the glass and covered the house with shingles, after which I liked it very much better.

I started out to say that any one can start in the poultry business with only a dollar for capital. When I was about twelve years old I commenced with 25 cents, which amount I received the last day of school for being at the head the most times in the spelling-class. With this small investment to start with, I kept poultry for a good many years, and made a success of it from first to last. Now, don't any of you tell me you have nothing to do. Just a day or so ago somebody told me eggs were bringing in the home market 20 cts. a dozen. Why, I used to be happy when I could get *half* that much, and corn and wheat were little if any cheaper then than now.

A Primer on Forestry.

The above is the title of a beautiful book just forwarded us by the U. S. Department of Agriculture, Washington. It is a book of 90 pages, printed on beautiful paper, and there are 130 beautiful half-tones illustrating forests and forestry, and different kinds of timber, cross-sections, and, in fact, every thing pertaining to the subject of forestry and timber. The book tells us, by pictures and descriptions, how straight-grained timber is produced. It gives some interesting facts in regard to natural pruning. It tells about the enemies of forest-trees, the life of the forest, and, in fact, every thing about woods. It gives us some glimpses of the great forests in Oregon and Washington that made my heart leap with a desire to see them again. We are shown by beautiful photos how many trees of good size can sometimes stand and grow on a little bit of ground. In passing through Yellowstone Park I saw pieces of forest where the trees were so close together that a horse could not possibly get between them, and in some places it would have been very difficult and hard work for even a man to get through, especially when the fallen timber crossed and recrossed between the standing trees is taken into consideration. The book tells about growing forest-trees; the conditions necessary; how to preserve our forests. This primer is marked Part I. Although it is a beautifully bound book, I can not learn that there is any price put on it. If you are interested in the matter, write to the U. S. Department of Agriculture, Washington, D. C. Tell them you want the Primer of Forestry. If that does not bring it they will probably tell you what to do to get it. The book is certainly a most beautiful contribution to the literature on the subject.

KIND WORDS FROM OUR CUSTOMERS.

The queen arrived safely. Please accept thanks for the same. I shall speak a good word for you and GLEANINGS whenever opportunity occurs.

Cincinnati, O. JOHN C. FROHLIGER.

The A B C of Bee Culture was received all right, and I am well satisfied with it. I would have been $50.00 better off if I had got the book three years ago.

Harrison, Mich. JOHN FRIZZELL.

THE FAULTLESS SPRAYER.

The sprayer plays havoc with potato-bugs, cabbage-worms, and flies on horses and cows. A cow stands out all day in the shade of a tree; before, she hunted the darkest stall in the stable in daylight.

Kearneysville, W. Va. S. D. RUTHERFORD.

Here's your dollar for GLEANINGS. I will accept offer No. 3, page 491. I will not say stop, for I may be interested in bees again. It seems to me that GLEANINGS is improving, and getting away ahead of the procession. I believe the time has come when people want every thing all wool and a yard wide; and the firm or individual that doesn't give it will continue to "holler" hard times, protection, etc.

Washington, Pa. J. W. VANKIRK.

OUR NEW APPLIANCES FOR COMB HONEY.

I sent you an order for a number of things, among them some Ideal supers, sections, fences, etc. I am very much pleased with them, and find, much to my surprise, that I have taken more comb honey from these stands than some others with the old-fashioned honey-boxes and open beeways. I send you a section of honey which I think must be equal to the A No. 1 you write of. JNO. M. WHEELER.

Winchester, Ky., July 15.

DELIGHTED WITH THE EXTRACTOR.

Mr. Root:—Well, the extractor got here at last, 14 days after shipment; $1.15 charges. I got it home safe and sound May 30; put it up and to work on the 31st; extracted some 25 gallons of fine honey. Let me tell you, it is one of the best ones on earth—as near perfection as I ever dreamed of seeing. It beggars language. I can not tell how delighted I am with my extractor. Did I ever think of such a machine? I loosened four little screws, took out the gearing, washed and cleaned, rubbed and dried it as clean as a new tin bucket. Why, it runs as true, steady, and as perfect as a clock. If I had the hands I could extract 100 hives in a day.

If I can only live and keep stout and well for five or ten years I'll make this place flow with milk and honey. J. A. BURROW, M. D.

Santa Fe, Tenn., June 2.

CHAS. ISRAEL & BRO.,
486, 488 & 490 Canal St., Corner Watts St., N. Y.
Honey and Beeswax.
Liberal Advances made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—For cash, No. 1 white honey in Danz. 4×5 plain sections. Write for particulars. Four sizes of Prize cartons for comb honey, and 66-page book, "Facts about Bees," for 6 cts. in stamps.
F. DANZENBAKER, Box 66, Washington, D. C.

WANTED.—To exchange 3-band or golden queens bred in separate yards, tested or untested, for any thing useful to a bee-keeper.
JNO. M. DAVIS, Springhill, Maury Co., Tenn.

WANTED. — To exchange piano, organ, graphophone, or other articles for first-class sections, comb foundation, queen and drone traps, Clark's smokers, and other bee-fixtures. Address
F. C. BREWER, Parkesburgh, Pa.

WANTED.—To exchange bees for barred, white, and buff Plymouth Rocks. Also sweet-clover seed at 5 cts. a package. MRS. A. A. SIMPSON, Swarts, Pa.

WANTED.—To exchange a few bushels of sweet-clover seed for untested Italian queens
R. GOULD, Crawford, Miss.

WANTED.—To exchange hand-picked winter apples, good keepers, for comb or extracted honey. Address J. B. MURRAY, Ada, Ohio.

WANTED.—Every reader of GLEANINGS to see the unparalleled *Farm Journal* offer on page 743. No one *can afford* to pass it by.

WANTED.—To exchange 27½ lbs. *new* Roman type —5½ point (agate)—extra quality, for best quality honey, maple sugar or syrup, or offers.
A. T. COOK, Seedsman, Hyde Park, N. Y.

EXTRAORDINARY OFFER.

Gleanings in Bee Culture
and The Ohio Farmer both
One Year for Only $1.10.

A business bargain for the business farmer! The Ohio Farmer stands at the head of agricultural journals in America; costs more to publish, and gives more to its readers than any other paper of its kind. It is a FARMER'S paper—practical, reliable, and entertaining. Twenty pages weekly, with liberal illustrations and complete market reports from all the leading market centers. Ten different departments. It will pay you in dollars and cents to read it a year. Sample copies free.

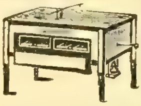
The Ohio Farmer, Cleveland, Ohio.

The Best Bargain Ever Heard of
is offered by A. T. Cook, page 743. Do not get left.

FOR SALE.—800 lbs. fancy clover honey, 200 lbs. No. 1 clover, and 500 lbs. good amber and dark; all in nice condition, in 12 and 15 lb. glass-front cases. Will sell to highest bidder.
FRANK McNAY, Portage, Wis.

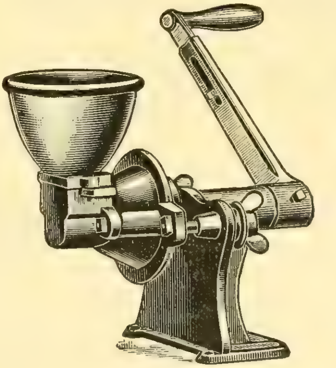
WINTER APPLES by the barrel or carload. Will sell cheap. Correspond at once.
J. B. MURRAY, Ada, Ohio.

WE TRUST THE PUBLIC



and send our Incubators to any responsible person. No one should buy an Incubator and pay for it before giving it a trial. It is made so that nobody can fail with it. **A child can run it.** 10cts. worth of oil will make a hatch. **It beat all others** at World's Fair, Nashville and Omaha Expositions. We are sole manufacturers of the celebrated **New Premier** and **Simplicity Incubators.** Catalogue 5 cts. Plans for Poultry Houses, etc., 25c.
Columbia Incubator Co., 8 Adams St., Delaware City, Del.
In writing, mention Gleanings

Vegetable and Flower Seeds Given Away.
40 cents' worth absolutely free. See offer, page 743.



Do It Your-self.

Be your own Miller....
Then you know what you're getting, and get it fresh and save money too.
The Tortilla Mill is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**
Address **The Frank Machinery Co., Buffalo, N. Y.**
In writing, mention GLEANINGS.

Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

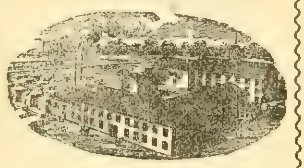
We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.

FACTORY
OFFICE
WAREHOUSE

Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.



BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **Tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free.

Address E. KRETCHMER, Red Oak, Iowa.

HONEY-JARS.

One-pound, square, $4.70 per gross, with corks; 5 gross at $4.50 a gross.

OUTSIDE CASES.

For wintering bees; include bottom, body, gabled cover; 60c ea.; 10, $5 50. Catalog, describing every thing a bee-keeper needs, will be sent free.

I. J. Stringham, 105 Park Place, N. Y.

Your Need is shipping-cases, some five-gallon cans, a lot of those new Danz. cartons. Send for sample carton and prices, and be surprised.

Our Desire is to satisfy your need. We can do it with Root's goods at Root's prices. Cash paid for wax. Send for catalog.

M. H. HUNT & SON, BELL BRANCH, MICH.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

SWEET-CLOVER SEED in the hull for sale at 5 cts. per pound. For orders of 50 lbs. or more, address JOS. SHAW, Box 64, Strong City, Chase Co., Kan.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

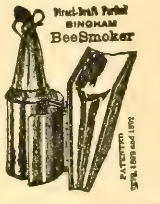
Smoke Engine (largest smoker made.)	4-inch	stove.	Doz.	$13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	"	9.00;	"	1.10
Conqueror	3-in.	"	"	6.50;	"	1.00
Large	2½-in.	"	"	5.00;	"	.90
Plain	2-in.	"	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	"	4.50;	"	.60
Honey-knife			"	6.00;	"	.80

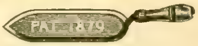
Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.





Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS

SPRINGFIELD.—Fancy, 16@18; No. 1, 14; buckwheat, 12@14. The demand is good, and it is selling very well.
PERKINS & HATCH,
Oct. 19. Springfield, Mass.

SCHENECTADY.—We could sell some fancy white honey at 18; A No. 1, 15@16; No. 1, 14@15; No. 2, 12@13; buckwheat, 10@11; extracted dark in 60-lb. cans, 6½; kegs, 6.
C. McCULLOCH,
Oct. 18. Schenectady, N. Y.

DETROIT.—Fancy white comb, 15@16; No. 1, 14@15; amber and dark grades, 10@12. Demand good and supply light. No extracted in the market, with considerable inquiry. White would sell at 8c. Beeswax, 23@24, with good supply.
M. H. HUNT & SON,
Oct. 18. Bell Branch, Mich.

KANSAS CITY.—The demand for comb is fair; supply light. The supply of extracted is light; demand good. We quote No. 1 white comb, at 13½@14c; No. 2 white, 13@13½; No. 1 amber, 13½; No. 2 amber, 12½@13; extracted, white, 7@7½; amber 6@6½; dark, 5@5½. beeswax, 22@25.
C. C. CLEMONS & CO.,
Oct. 19. Kansas City, Mo.

ALBANY.—Honey market active. Honey is less than half crop this year. Comb honey selling freely at following prices: Fancy white, 15@16; No. 2 white, 13@14; mixed, 12@13; dark, 11@12; white extracted, 8½@9; mixed, 7@7½; buckwheat, 6@6½; beeswax, 26@27.
McDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
Oct. 18. Albany, N. Y.

CHICAGO.—The market is active, and full quotations are obtained. A little fancy white sold at 16c, but sales are chiefly at 15c for the best grade; white, not strictly fancy, brings 13@15; amber grades, 10@12; dark, 9@10. Extracted, 7@8, according to body, flavor, and package; ambers, 7@7½; dark grades, 6@7. Beeswax, 26@27.
R. A. BURNETT & CO.,
Oct. 18. 163 S. Water St., Chicago, Ill.

BOSTON.—But little new to note in this market on honey. The supply still continues to be very short, while the demand is naturally a little lighter, as the retail trade is not quite up to higher prices, still with the light stock we must evidently come to it. We quote our prices as follows: Fancy No. 1 white, in cartons, 15@16; A No. 1, 14@15; No. 1, 13@14; light amber extracted, 7@8; amber, 6½@7½.
BLAKE, SCOTT & LEE,
Oct. 19. 57 Chatham St., Boston, Mass.

MILWAUKEE.—The demand for honey has been very good, and we have enjoyed a fair degree of the trade; while the supply has not been burdensome, it has been sufficient to meet the current demand, and values well maintained, and thus the demand has been somewhat checked. We continue to quote fancy 1-lb. sections, 15@16; A No. 1, 14@15; No. 1, 12@14; best amber, 14@15; extracted white, in bbls., kegs, and pails, 8@9. Beeswax, 25@26.
A. V. BISHOP & CO.,
Oct. 19. Milwaukee, Wis.

NEW YORK.—Demand good for all grades of comb honey, and ready sale at following prices: Fancy white, 15c; No. 1 white, 13@14; amber, 11@12; buckwheat, 9@11, according to quality. Extracted also in good demand at following prices: California white, 8½; light amber, 8; white clover and basswood, 8; amber, 7½. Little doing as yet in buckwheat. Southern fancy, 7½; other grades, as to quality, 70@75 per gal. Beeswax, 26@27, and dull.
HILDRETH & SEGELKEN,
Oct. 20. 120 and 122 W. Broadway, New York.

FOR SALE.—Fine basswood honey in 60-lb. cans, two in a case, 8½c net. Also basswood, clover, and fall flowers mixed, light amber, same price, f. o. b. Union Center, Wis. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—We have some nice basswood honey in kegs and cans at 8¾ cts. per lb. Sample 5 cts.
I. J. STRINGHAM, 105 Park Pl., New York.

WANTED.—Comb and extracted honey. State price, kind, and quantity. BLAKE, SCOTT & LEE,
57 Chatham St., Boston, Mass.

WANTED.—Your honey. We will buy it, no matter where you are. Address, giving description and price.
THOS. C. STANLEY & SON, Fairfield, Ill.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
163 South Water St., Chicago, Ill.

WANTED.—Quantity lots of comb and extracted honey. Car lots preferred. B. WALKER, Evart, Mich.

WANTED.—Fancy white comb and extracted honey. Give price, kind, and quantity. C. H. W. WEBER,
Successor to Chas. F. Muth & Son and A. Muth,
2146-48 Central Ave., Cincinnati, Ohio.

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C. H. W. Weber, 2146 Cent. Av., Cincinnati.
Successor to Chas. F. Muth & Son and A. Muth.

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M. R. MADARY, - Fresno, California.

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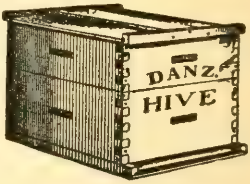

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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STRAY STRAWS FROM DR. C. C. MILLER

SOMETIMES it happens that, by some means, some nice sections of honey have their faces so daubed as to be almost spoiled. Put a super of such sections over a hive and take away as soon as the bees have had time to lick off the daub.

I NEVER used a sheet of cloth, as mentioned by Capt. Hetherington, p. 750, to cover honey-cases in a car, but last week I used newspapers, tacking them lightly on the cases. The cloth has the advantage that it is all in one piece Perhaps better than either would be manilla paper pasted together.

MR. EDITOR, if you think it for the general good to have your program arranged to shorten up the spelling thruout the whole catalog of words ending in *ue* and *ugh*, I'll try to bear it manfully, even tho it does sometimes jolt me in reading. But, say; won't it leave the word rather short if you drop the final *ugh* from the interjection "ugh"?

YOU CAN NOT give the absolute weight of any section of a given size, for one year it will be heavier than another. But I can give the relative weights of three kinds of sections for this year.

5676 beeway	4¼×1⅞	averaged	14.94 oz.
442 plain	5×4¼×1¼	"	13.82 oz.
345 "	4¼×4¼×1½	"	13.83 oz.

THE SHIELD of a Crane smoker became unriveted for me, as mentioned p. 754, but I had hardly thought of it as a fault, for the shield did just as good service after it was loose. [The shield of the Crane smokers, and also of the Corneil, are not only double riveted for 1900, but have washers that enable the rivet to maintain a stronger hold upon the metal of the shield.—ED.]

THE ANNOYANCE of having inky drops fall from the nozzle of the smoker upon nice white sections is sometimes very great. I never really knew how to avoid it until lately Critic Taylor of the *Review* said to use very dry fuel. Simple enough! There can't be any drops of dirty water unless the water comes out of the fuel. But I never was bright enough to think of it.

RAMBLER is making trouble, p. 759, by talking about the longing for the "favored clime" of California; and when he talks about the roses I just feel like getting out of this place where the thermometer goes down to 24° in September. But when I turn to p. 751, and think that in California I might "have to live alone or in the mountains with my bees, as so many California bee-keepers do," I feel content to stay here and freeze. I'd rather have folks than a "clime."

F. GREINER is right about the two distinct faults of the Daisy foundation-fastener, the mussy dripping and the lack of room for the lamp, or, rather, for the chimney, for there's no difficulty about getting a lamp to suit. I have used a tin chimney of just the right height, and don't know of any advantage the glass has. Just a plain tin tube of the proper length and the same diameter as a No. 1 chimney at the bottom might be sent out with each fastener, and in my judgment it would be a good deal better than to change the fastener to take a glass chimney. [The Daisy foundation-fastener has been changed for 1900; and the objections that have been named by Mr. Greiner have been entirely eliminated. I think I had better send you a new plate that you can attach to the Daisy. It is a "daisy" now, I assure you.—ED.]

MR. EDITOR, you talk some pretty good talk on page 753 about being liberal and not judging too harshly. Now, I'm not going to put any mischief into friend Ochsner's head, but I can hardly blame him such a great deal if he should say to himself, "I wonder why in the world the editor didn't talk that same way when a man was talking about taking my favorite sections to some swamp and stamping them out of sight in the mud!" [When friend Ochsner, on page 753, spoke about Orton's saying that the old 4¼ sections ought to be "stamped in the mud," I could hardly believe that he had made any such statement. When I first read the article, preparatory to putting on my footnote, I did not notice it and that is the reason why I made no refer ence at the time to it. But notice particularly, doctor, that when I did reply to it I made the statement *not* for the benefit of Mr. Ochsner, but for Mr. Orton. It was the latter who talked about stamping the sections in the mud, and not Mr. Ochsner. While I can see no good reason why the 4¼ beeway section should be preferred to the same size plain, I believe in giving the Devil his due.—ED.]

A CORRESPONDENT sends me a document sent out by The A. I. Root Co. in which the word "clubbed" is cut in two, the "club" being at the last end of one line and the "bed" at the beginning of the next, suggesting that phonetic spelling would have given room without resort to such division. I should feel like entering a protest against the practice of dividing a word of one syllable, only if I should do so that fiendish proof-reader would fling back at me that I not only sometimes divide a syllable but put the hyphen with the fragment that begins the second line. [The division of any word at any time is objectionable, and is tolerated only as a necessary evil. Where the line is long, and type fine, a careful printer can get along and make almost no divisions; but as the line becomes shorter and the type larger, divisions become more and more unavoidable unless a still greater objection is introduced—that is, putting extremely wide divisions between the words. The point referred to was discussed in the latest issue of the *Inland Printer*, and the judges decided that it is not best to make a rule that *ed* shall not be cut off unless it has a distinct sound, as in *exhausted*. Such a rule would make great inconvenience in lines as short as ours, while it would not interfere with the *American Bee Journal* in the least. As Mr. York well says in a private letter I lately received from him, the audience is not critical enough to make such hair-splitting pay. The Bible abounds in such divisions as you refer to, such as *shew-ed*, *compass-ed*, *worship-ped*, etc. The French continually divide what we call one syllable.—PROOF-READER.]

R. WILKIN, p. 751, says that alfalfa honey, "if not the most popular, is a very fine honey." That hint that alfalfa honey is not popular is a surprise to me. I can hardly see how it could be unpopular with any except those who like very strong flavors. In one respect alfalfa stands at the head, and that is where sweetening is wanted without the flavor, as in coffee. The use of honey in coffee and tea is greatly to be commended on the score of health, but the flavors of most honeys are objectionable. The flavor of alfalfa is so mild that it takes the lead as a sweetener for hot drinks. [When R. Wilkin was speaking about alfalfa honey not being the most popular, I suspect he had reference principally to the State of California, or those localities where white mountain sage is produced. I never saw the Californian yet who did not prefer this honey to the best white-clover honey or the best alfalfa; and the very fact that buckwheaters in York State prefer their dark rich honey, which most of us dislike, goes to show that locality and the education of taste have a good deal to do with the local popularity of any one kind of honey. Although I have been brought up on clover and basswood, preferring the clover, yet as between these and alfalfa I prefer the latter. As between alfalfa and white mountain sage the alfalfa suits my taste better. Yes, if the time ever comes when alfalfa honey will be produced largely in California, we shall expect a revolution in taste; but for absence of flavor I think mountain sage will stand ahead of alfalfa. In that respect it would be even better for sweetening coffee and tea. It is true that honey for sweetening either of these table drinks is not very desirable unless there is little or no flavor. Buckwheat honey would be the least desirable, while white mountain sage or alfalfa would be the best; and yet even these, as mild as they are, will not be liked as well as cane sugar, which comes as near being a real sweet without flavor as any thing in the world.—ED.]

"THERE ARE some people who wear Congress gaiters, and yet I suspect a great majority will wear nothing but laced shoes"—page 753. Yes, very few will wear Congress shoes, just because they can't get them. I bought one pair of laced shoes a year or so ago; and if I'm ever forgiven for the time I wasted in stringing up those shoes every morning I'll never buy another pair so long as I can get Congress shoes by paying a good deal more. And *sometimes* bee-keepers use a thing, not because they like it best, but because of the difficulty of getting what they do like. [I used to wear Congress gaiters exclusively, and was wont to say, as you now affirm, that I could not afford to waste time in stringing up shoes every morning, to say nothing of the inconvenience of being doubled up like a jack-knife for a period of a minute or two; but after I had worn two pairs of the laced, I discovered that they were easier wearing, and they permitted me to make the shoe fit my ankle; whereas the Congress shoes, owing to excessive tension of the rubber, very often pinched the ankle so tight as to be decidedly uncomfortable. After the shoes became old the rubbers would stretch out, and then I would have that degree of comfort that I now have with laced shoes. Now let me tell you what induced me to discard the Congress shoe. I had been making a hundred-mile run on the bicycle, with Congress gaiters. On arriving at Dr. Mason's that night I told him my ankles were swollen. I remembered that, during all the ride, they were very uncomfortable. After the doctor's examination he exclaimed, "Why, Ernest! don't you know better than to wear such tight rubbers around your ankles?" Well, the result was I took my knife and split the rubbers till I had room. But this preference for Congress gaiters and laced shoes illustrates very nicely, I think, the preference that bee-keepers have for various devices that are used in the apiary. I have known some bee-keepers who preferred the Clark cold-blast smoker to a Bingham or Corneil, even at the same price. For my part I would not take a Clark as a gift, providing I could get a hot-blast; and yet how the other fellow can prefer the cold-blast is something I can not understand.—ED.]

PICKINGS
FROM OUR NEIGHBORS FIELDS.
BY STENOG.

The gloomy clouds now fill the sky,
 Surcharged with hail and rain;
While eating summer's hard-earned stores
 We'll laugh at summer's pain.

* * *

AMERICAN BEE JOURNAL.

Owing to the drouth in Texas, many bees are starving to death.

* * *

A commission house in Chicago received two barrels of honey from a bee-keeper. Not needing it they sold it, on a snap offer, for 25 cts. a gallon—2 cts. per lb. How much did the bee-keeper get? Mr. York justly speaks of bee-men like that as "fools."

* * *

Mr. John Carson, of Newton Falls, O., aged 65, was stung to death recently. He tried to burn some sulphur near his bees to render them harmless, when they covered his head. He rushed to the house, fell on the floor, and died in a short time. The moral is, use a veil.

* * *

At a convention in Texas the question was asked if the color of honey has any thing to do with the color of comb. All agreed that it has. One case was cited where the darkest kind of honey had very white comb. This was supposed to be because the honey was "bug-juice," hence the bees did not use it for making comb.

* * *

The omission of the convention report is due to the illness of Dr. A. B. Mason. He was unwell on his way home, and found, on reaching Toledo, that his daughter Flora had broken her right arm, but the news was concealed from him till he reached home. This increased his own work so much that he got behind. Mr. York is entirely excusable, especially as his journal is none the less interesting. But it does give a printer a "feeling of goneness" to be obliged to drop a stitch in a series of articles.

* * *

Mr. Thos. Elliott, of Illinois, gives the following account of a serious sickness he had, induced by inhaling vapor when rendering a lot of combs from colonies that had starved. He says:

> Some three years ago I boiled down the combs from 150 hives in which the bees had starved out during a dry spell in California, and there were a great many dead bees in the combs. I used the extractor-tank outdoors, and it took me two days. From that time on my health failed. I can best describe it by saying that in one year I had become 40 years older. Every sense, feeling, or organ, in the human body, that can be affected, came under the influence of the poison. I was in a manner paralyzed, and the doctors told me that I could live but a short time.

He consulted a physician in Chicago, who understood the case, and under his care the patient recovered. Such work should be done outdoors, where the wind can carry away the foul odors.

Some one speaks of the Alley trap as a "big nuisance," on the ground, apparently, that some of the pollen on the bee's legs is brushed off in passing through it. I let Mr. Alley make his own defense:

> Suppose a little pollen, say one per cent of all the bees collect (and it is not more than that amount), is brushed off the legs of the bees when they pass through the metal, does any one have an idea that that would in any way affect the prosperity of the colony? The person who asserts that the trap is a "nuisance" most likely is one of those bee-keepers who have not been long in the business, or it seems to me he would not now attempt to discuss the merits of the trap, as these same charges, years ago, were brought against it, and no one took any stock in them; and I do not believe they will now.

* * *

Mr. C. Theilmann, of Minnesota, makes the startling and positive statement that the celebrated Dzierzon theory is fallacious, and that he has shown it to be so. He says his formula is so simple that almost any bee-keeper can satisfy himself that bees can and will produce either sex from eggs laid in worker-cells by a normal queen. If Mr. T.'s claims are correct, Mr. Dzierzon will be one of the first to recognize them. Some time ago I read in a foreign journal that Mr. D. was revising his own theory, and that he might some time abandon it.

* * *

Mr. C. P. Dadant is an advocate of feeding bees well in order to get stores. His advice to a correspondent to do so is followed by the report below:

> My bees were near starvation, and I did not know what to do. I thought it would cost too much to feed them, so I asked you if you thought it would pay. You replied that you would feed them all they needed, even if you had to borrow the money to do it. So I was encouraged, and bought the sugar for feeding, being about a barrel and a half, which supplied them until the harvest began.
>
> My crop this year was 2200 pounds of fine honey, while my neighbors, who keep as many colonies as I do, got very little from them, and some not a pound. One of them, who has kept bees for 15 years, had 30 colonies, spring count, did not feed, and he got only 3 swarms from the 30, and very little honey.
>
> I had 27 colonies last spring which I fed just as you directed, and I took off the 2200 pounds of honey, and had 35 swarms besides, which I think is pretty good for this year.
>
> I began in 1893 with one colony, being 25 years of age. I have been successful ever since in wintering, not losing 3 colonies in the six years of my experience.
>
> TOFIELD LEHMAN.
>
> Fayette Co., Iowa.

* * *

AMERICAN BEE-KEEPER.

Mr. J. L. Lattimer recently argued for the old-style sections in place of the new. In my reply to him the editor thinks I did not understand Mr. L., and says:

> Stenog has evidently misconstrued Mr. Lattimer's remarks. Surely he nowhere anticipated the probability of both styles of sections being placed in competition on the same table; but sought simply to illustrate the superiority of his choice by such supposition. Nor do we see wherein he recommends placing the honey upon the table without first removing the wood According to Dr. Miller, and popular usage, the word "section" in his fourth paragraph plainly and properly meant the honey and not the wood.

That certainly makes a difference. But it did seem strange to me that a mere accident should be deemed likely to happen to one kind of section and not to another. By the way, how should comb honey be served on the table? Some put a little on a dish at each plate, while others put it all on one large dish, and let each help himself. But is not the shape of the whole chunk, as it leaves the section, entirely lost by cutting the comb into smaller pieces? People should be led away from what is a mere whim; but if they insist on the whim, and are willing to pay for it, let them have it.

* * *

Mr. Ed. Jolley says: "Nothing helps more to sell comb honey than nice, clean, white sections. It is always poor economy to buy second-class or discolored sections. The retail dealer will find readier sale for a poorer grade of honey in nice, clean, white sections than for fine honey in dirty or discolored sections." In the latter case, why not point out the slight bearing the section has on the matter, and say that is not intended for food? But as some customers, especially women, are so notional about mere looks, perhaps it would be well to show them the great importance of buying honey in very white sections.

General Correspondence

RAMBLE 178.

The Dog and the Grub-box.

BY RAMBLER.

"Good-morning, Mr. Brodbeck."

"Good-morning, Rambler. Well, you are on time, I see."

"Yes, Mr. Brodbeck; I always try to be punctual in appointments. I do hate to expect a fellow for half an hour after the appointed time, and the longer I wait the more fidgets I get; and when I am not on hand at the appointed time I feel that I am inflicting the same discomfort upon the friend who is waiting for me. Well, I suppose you have every thing ready for a start."

"Yes, all but loading a few things into the wagon; and if you don't mind lifting them in, Mr. Rambler, while I harness Prince, you may do so. My old trouble, elephantiasis of the plasmodium, bothers me again this morning, and I can not lift worth a cent."

"All right, Bro. Brodbeck. Why, I can lift any thing; and it is a real pleasure for me to aid you. I am sure you must be very weak with that old complaint in your system, and I hope this trip to the San Gabriel Canyon will do you good. Why, I was once troubled with the evolutionary phlandangoes, and really felt —well, I suspect that a gypsum mummy doesn't feel — but I felt about as they look; but I started right off on a camping-trip into the San Bernardino Mountains, and came back as chirk as a chipmunk. But, see here, Brodbeck; what are you going to do with this sledge-hammer and pickax?"

"Ho, ho, Rambler! Why, didn't you know there is good gold-mining in the San Gabriel Canyon? Just think how nice it will be for us to strike a gold-mine! Won't that work well after two failures in the honey crop, hey, Rambler?"

"Brodbeck, I am too full for utterance. You strike me on a tender chord. Gold, gold always so near, in other men's pockets, but so far from mine. Why, Brodbeck, if it is gold we are after, let's take a whole load of picks and shovels."

"Hold easy, there, Rambler; don't put that grub-box under the seat."

"Why, Brodbeck, it just fits in there; and then there is one advantage in having it under the seat—you won't be getting your fingers into it between meals."

"Well, you see, Rambler, I want that place reserved for Juno."

"Great Scott!" (I came near dropping the grub-box) "and you are going to tote that dorg too? Well, I do declare!"

"Yes, she is always so lonesome without me; then there is a little whooping-cough in the neighborhood, and I am afraid she will get exposed, so I will take her along."

"Well, now, you are the dog-goned-est fellow I ever saw. Why, when I owned a dog I taught it to trot along under the wagon. Why, I know a dog is happier to be allowed to run and skip like Mary's little lamb. But, say; I have another excellent plan. Put the dog into a box and hang it on the hind end of the wagon."

"Not much. Why, Rambler, you talk as though I do not know how to use a dog. Why, a box is too confining."

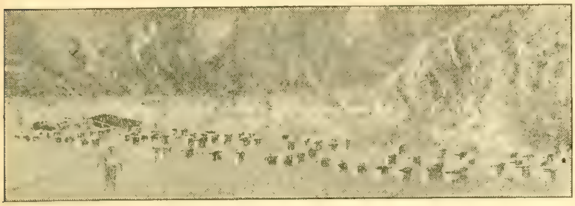
"Of course, Brodbeck; I understand all that; but I was going to suggest the attachment of a ventilator; but all right—we won't have any mental aberrations over the matter. But, say; it occurs to me that you own the horse, the wagon, and the dog; now, do you own and have a controlling influence over the fleas on the dog?"

"Well, that is another downright insult to my knowledge of dogs. Why, Juno wouldn't know a flea if she should see one."

"That is probably a fact; but she evidently knows when she feels them. That's right, Juno; dig 'em out. But say, Brodbeck, I won't stand on such a little thing as a flea. If they get too plentiful I can flee; and if I flee you will have to submit to all of the fleas or flee yourself. Hurrah for the San Gabriel!"

We had a delightful drive that day up through the San Gabriel Valley. While the evidences of a long-continued drouth were visible, there were other evidences that even long drouths are not without their blessings. The salvation of this country depends upon water; and as but little of it comes from above it must come from below; and during an unusual drouth there is an extensive development of water. No matter how unyielding the skies are, there is always plenty of water deep down in the earth. Wells are drilled, and in many places the artesian water flows in copious streams from the pipes; but usually the pump is resorted to, and steam, gasoline, and electricity are the powers applied; and what nice streams are poured out upon the thirsty land ! and what nice fields of alfalfa were growing !

"Why, Bro. Brodbeck," said I, "it is only a question of time when this whole valley will be under cultivation, and thousands of acres of alfalfa will be grown ; and then, instead of there being no bees down here in the valley, there will be many apiaries."



APIARY IN THE SAN GABRIEL CANYON.

"Yes," said Mr. Brodbeck ; "then see the long avenues of gum-trees already here. This will certainly be a paradise for bee-keepers some time."

We camped that night in the mouth of the San Gabriel Canyon, and near one of those pumping-plants. A company had dammed the river here, and they were pumping a large stream of water, and sending it in pipes to the valley; but there is not a drop of water in sight in the river—nothing but great boulders, and no signs of a dam. Back east we build a dam across a stream and depend upon the overflow ; but conditions are different here. The water follows along the bed rock, and in this case it is 80 feet from the surface. A well was first sunk—they call it a shaft here—then a tunnel is cut across the river upon the bed-rock, and a dam the whole length of the tunnel. Of course, the river is dammed, and there are no signs of it upon the surface.

The first bee-ranch we encountered was near the pumping-plant, and is owned by Clarence A. Hoag. Clarence said he had kept bees several years ; and while he had been living a bachelor's life he had experienced very good luck, and much quiet and happiness ; but he was married a few years ago, and somehow since that time dry seasons had been the order; and to keep his family alive he had to rustle into other work, and was then working in that tunnel, eighty feet under ground, on the night shift. He looked somewhat sad and dilapidated, and I could imagine how he would yearn for those bachelor days, when his wife would arouse him in the night and say, "Clarence, dear, it is time for you to rustle into that hole in the ground." But, a-lack-a-day ! bachelor bee-keepers have not much peace of mind themselves during these dry seasons. Mr. Hoag had lost quite a number of his colonies, and was evidently following the plan of allowing the fittest to survive. I suppose that, owing to the fact that there was no end of stones in the wash just below the apiary, there was a whole wheelbarrow load upon every hive.

Several miles up the canyon we struck another bee-man. Mr. Porter had lived in the canyon 25 years ; had usually secured 8 tons of honey every year from his 100 colonies ; but for the past five years he had taken nothing ; and during the past two years he had lost three-fourths of his bees, and was still losing. Mr. Porter did not seem to be anxious to talk about his bees, and he was, perhaps, excusable under the circumstances ; but he had one thing on his ranch that he could brag about, and that was a fine spring of water.

"Say, gentlemen," said he, "go right down over the river bank and you will find the best water you ever drank. It is better than all the beer in Los Angeles."

I agreed with him promptly there, even before I drank the water; for any kind of water is better than beer. Mr. Brodbeck is getting to be quite a temperance man too. Of course, I suppose he always favored temperance ; but to tempt him I offered to treat at every saloon we passed upon the trip ; but he steadily refused, and even hinted that he would vote the Prohibition ticket next fall. No fleas on Bro. Brodbeck that time, sure.

A HOLD-UP.

The San Gabriel Canyon has the worst road in seven counties. It is very well to have a road paved with stones ; but when they are boulders of various sizes, the frolicsome way a wagon jolts along is extremely irksome, and I preferred to shank it. Toward the conclusion of our journey we fell in with a camping-party which included several young ladies, and all, except the driver, were shanking it too; and while the wagons had to follow the windings of the stream, and jounce over stones, we could shank it across the points, pick button-hole bouquets, and admire the grand scenery.

The ladies and I were admiring the beautiful blossoms on a bull-thistle when Bro. Brodbeck hove in sight. He swung both arms, and shouted, "Say, Rambler! say! come over here—do! I'm awful tired of this rough riding. Won't you drive, Rambler? do drive."

"No, Bro. Brodbeck," said I, firmly, "I am fortunately, just now, otherwise engaged; then there is quite an amount of malaria floating through this underbrush, and I must insist upon your avoiding it. Cling to the wagon. So long!" and we all disappeared again across another point; but how lonesome Brodbeck appeared, jouncing over the boulders, while I was with the gypsy hats and the gay ribbons!

I never thought I should really enjoy a hold-up. There have been so many of them in Arizona that I have been a little timid when traveling in lonely places lest some of these gentry from the aforesaid State might pounce upon me; but thus far I have escaped them; and now to be held up by a couple of ladies!

We had to cross the river quite a number of times; and the further up the canyon we traveled, the larger the stream. At first it was stepping-stones, and now it was logs upon which we crossed, and it was here that the hold-ups occurred; and they were of such a pleasant nature that I illustrate. If all hold-ups were of such a pleasant nature as this I am sure no one would seriously object to them. I am greatly pleased that I saved Mr. Brodbeck from having the experience.

HONEY AS A DAILY FOOD.

Sugar as a Food and as a Dietary; Cane Sugar vs. Honey.

BY ANTON LEISTER.

It is well known that cane sugar has a very decided value as a food, aside from its use as a condiment. It is said that negroes on the Louisiana sugar-plantations, living largely on the sugar cane, thrive and grow fat, though subjected to the hardest kind of labor. Any one by trial will soon be convinced that sugar has a high nutritive value, when properly used.

Since honey is only another kind of sugar, a kind (grape sugar) that is in a much better form for digestion and assimilation, why should it not be true of honey, too, even in a higher degree, that it has a high value as a food, and that it can take the place of meat, butter, and the like, in a dietary? I believe that it is true, and that honey has a high food value. Here are my reasons:

Two years ago, when the finest white-clover honey was selling for 6 cts. per lb., I bought it by the gallon and used it freely every day for six months. I used as much as 16 ounces some days, and on an average, week in week out, ate one third of a pound per day, with the following results:

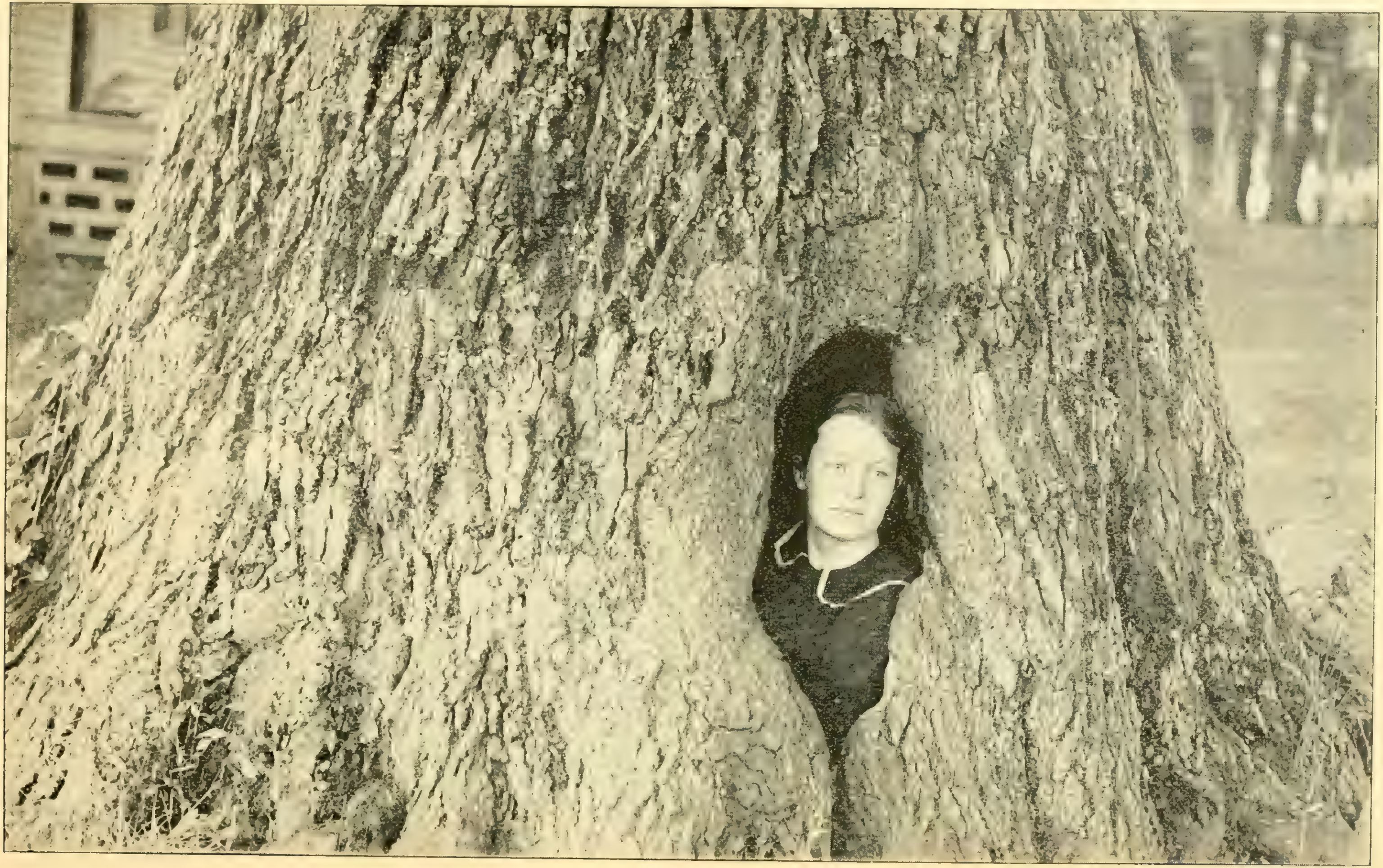
In only one or two instances did I experience any bad effects from eating honey in any desired quantity at a time. In these instances the honey caused vomiting, which was due, however, not to the honey, but to the fact of eating when very hungry and very tired, and before having rested. A meal of beefsteak under these conditions would most likely have produced the same effect. As it was, the honey in these rare instances had a remarkable advantage over other foods, for it was rejected in half an hour or an hour, unchanged by fermentation and souring, while other foods would have thus changed in a very short time, and to a very disagreeable extent. Though an unpleasant fact to speak of, I mention it because it throws a strong light on the hygienic value of honey.

But when I say that, with the above trifling exceptions, I ate from five to fifteen ounces of honey per day for months, with a saving of money, and with excellent hygienic results, it is necessary to call the especial attention of the reader to the conditions under which this was done.

The honey was not eaten with hot biscuit and butter, nor was it eaten to "top off" a square meal of all kinds of other substantials. But I had (and still have) bread made from "whole wheat flour," and on this alone, dark, dry, and hard, together with the honey, I made a meal once or twice a day, eating other foods for the remaining meal to secure the necessary variety.

This way of making the honey a main part of the meal, and not a mere relish, a tickler, and spur for the sated appetite, is a very important point; for honey, as usually eaten, a relish after the main part of the meal, is likely to be injurious because of its richness in nutritive elements. But right here let not the reader suppose that, after a breakfast on dry bread and honey, I sat in the house until the next meal time, doing nothing; for my work might be sawing and splitting wood in the woods, alongside of some hearty, well-fed man. It might be a walk of fifteen miles in a blizzard; or it might be pitching hay in a July sun, or sometimes it might even be a tour of five or six hours with the pen; and to the credit of the honey and the bread, and the method, be it said that they never failed to enable me to do or to endure as much as and more than able-bodied men of my age who used the diet that is usually supposed to be indispensable to health, strength, and happiness. Be it understood, of course, that I do not mean to say that I used honey and bread only, to the exclusion of all other foods. Bread and honey was more than half of my daily food for months, and at least once a day it formed the entire meal.

Another point in this use of honey, a point which I regard very important, was that five-



THE TRUNK OF A GIANT BASSWOOD ON THE SHORES OF LAKE ERIE. SEE EDITORIALS.

sixths of the honey I used was granulated, or candied. I will use no other; and when I can not get the candied honey I generally stop the use of honey altogether. I believe candied honey is more ripened, more digestible, much better tasting, much less likely to cloy the appetite, and much neater to use, than the liquid honey. I believe that, instead of seeking methods to prevent honey from granulating, prizes should be offered for the best and quickest method of securing this change.

If bee-keepers will carefully inquire into this matter of the dietetic value of honey, and its proper use, they may find a need for much more honey in their own homes, and they may succeed in convincing customers that honey at 6 to 8 cts. per lb. is a far cheaper and better food than beef and butter at the usual prices.

Brunswick, Ohio.

[Mr. Leister is personally known to me, and often comes into our office to talk honey. Some two years ago he told me he was going to test honey as a food—that he had already tried it to a limited extent, and with very beneficial results I told him we should be glad to have him give the result of his experience, and here it is.

At the Philadelphia convention, Prof. H. W. Wiley, U. S. Chemist of the Department of

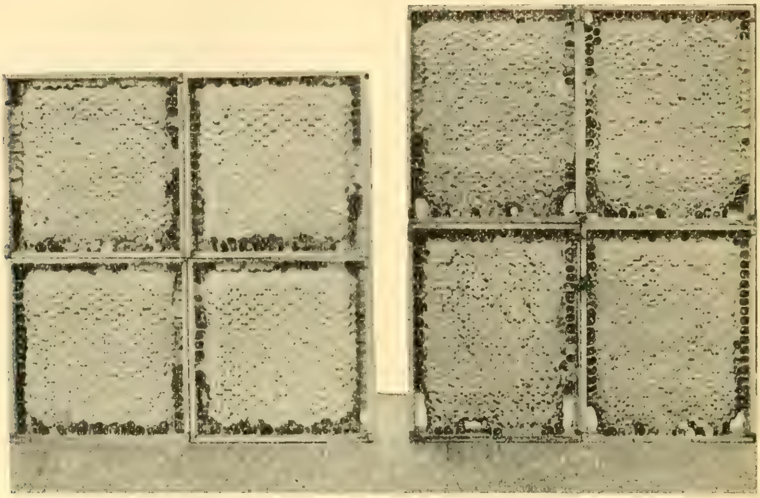


FIG. 1.—SAME WEIGHT OF HONEY IN SQUARE AND TALL SECTIONS. SEE EDITORIALS.

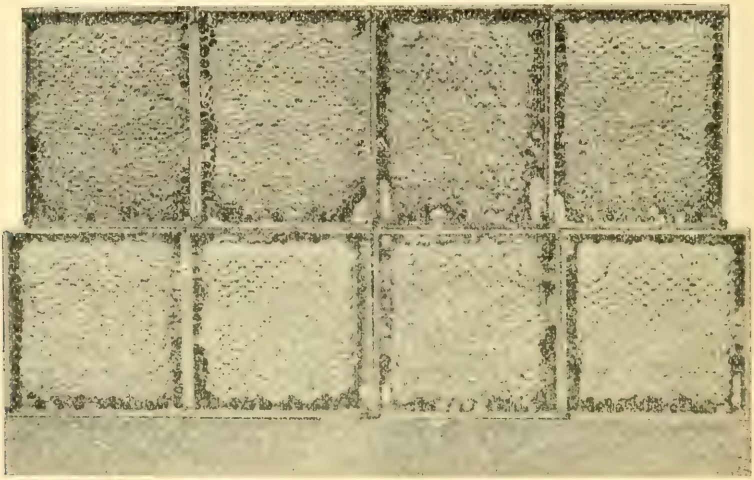


FIG. 2.—SAME WEIGHT OF HONEY IN SQUARE AND TALL SECTIONS. SEE EDITORIALS.

Agriculture, Washington, D. C., gave special emphasis to the fact that all sugars are a real food, going to make, under certain conditions, bone, fat, and muscle ; but he added that, honey being specially prepared by the bees, it was more fit for human consumption than any other sweet known. This statement is backed by Prof. A. J. Cook, now of Pomona College, Cal.; also by Dr. J. H. Kellogg, of Battle Creek, Mich. Besides these there are numerous other authorities that can be produced to prove the same statement. Dr. Kellogg, it will be remembered, was once very much opposed to the use of honey as a food ; but in later years his observations have led him to change his mind, and now he very frankly admits it, and positively says that honey is the most easily assimilated of any of the sweets on the market. Mr. Leister, while a college graduate, and possibly able to look into this subject from a scientific standpoint, has taken up the matter in a practical way, that is, from the position of one who has made a large use of honey in his regular dietary, and his statement is abundantly verified by the experience of E. E. Hasty, of Richards, O.; by the Rev. E. T. Abbott, of St. Joseph, Mo.; by Dr. A. B. Mason—yes, by scores and scores of others who might be named if we needed proof. While bee-keepers generally believe all this, they do not, as they might, emphasize these matters to the grocery trade and to the consumers. Just let those who are dyspeptic or who for any reason have weak powers of assimilation, and yet who are very fond of sweets, thoroughly understand that well-ripened honey is probably something they can eat with impunity, and we shall not only find an increased consumption of honey, but a stronger and healthier class of people.—Ed.]

DOOLITTLE CELL-BUILDING.

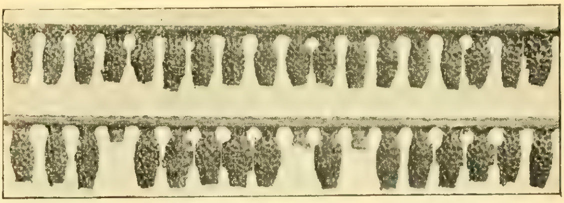
The Advantage of Starting Doolittle Cell-cups in Queenless Colonies, and Having the Same Completed Finally in the Upper Story of Colonies with Good Queens.

BY W. H. PRIDGEN.

I have noticed the remarks in Gleanings about your present success in having cells built ; and to bring about a little rivalry between your queen-breeder and myself, unless I am already beaten, I send you some sample cells from which the queens have emerged. To form a correct idea, they should, of course, be compared with some of his in like condition. One set is not larger than the average ; but the beauty of it is, all I send were accepted by the same bees at the same time. The complete batch was built by black bees over a young queen, while the others were built over an old three-banded queen mated with a golden drone. The cups for each batch were all dipped at once instead of one at a time. The comb from which the larvæ were transferred was given to bees without unsealed brood June 21, at which time not more than half a dozen larvæ with food around them could be seen. The next day a good-sized patch of larvæ was floating in the milk, so that, in shaving the comb down, many larvæ were shaven out. In fact, there seemed to be about half a drop in each cell, while the larvæ could rarely be seen, and the oldest could not be transferred by my method.

About 10 A. M., June 22, I prepared the bees to accept the cups by shaking them from an upper story (over an excluder) off from combs containing brood in all stages, into a hive containing combs of pollen and unsealed honey, and placed a screen at the entrance, so that no bees could escape. About 3 P. M., the same day, the prepared cups were given, and the bees kept screened in until the next morning, at which time the bees were returned to the hive whence they came, one batch of cells given to them to complete, and the other given to another colony.

June 29 the cells were but in nurseries as shown in last August *Review*, and the operations repeated in starting more. With the exception that the larvæ were not fed by queenless bees before transferring, and while all the cups given (36) were accepted, the cells this time are not quite so large. The larvæ in the first case were certainly not one day old ; and by the time they were 3 days old the cells were about as long as the queens left them when they cut out. I can not get fine cells or queens when larvæ much over one day old are used, because they are old enough to seal before the bees have time to feed them sufficiently to get them far from the top, and the cell is sealed with the larva about a bee's length from the tip.



I know I have to differ with Dr. Miller in a very modest way; but if he thinks that, because a larva is accepted in a Doolittle cup, it is always fed from the start as a queen should be, he is simply mistaken. I have had them accepted, and perfect workers reared. Neither can one get as good queens from three-day-old larvæ. My best emerge in 11½ to 12 days. Shaking the bees from the combs has much to do with preparing them to accept cups, and then not wait too long before they are given. I want to give my cups to bees just "crying" for a queen for about 24 hours, and then have them completed in a hive containing a laying queen. The anxiety for a queen wears off with queenless bees before the cells are completed ; but those just made queenless are much better at giving them the send-off and shaping-up of the cells. For the first day, queenless bees will feed the larvæ as much, and build the cells as long, as those over an excluder will in two days; but then they begin to lose their vim, and those over the excluder will beat them out all hollow on the home stretch. Bees will properly care for cells begun aright, that will not give them the necessary attention at first. A batch may be given where there is indifference on the part of the bees in accepting the cups, with the larvæ all the same age ; and although the majority of them may eventually be accepted, there will be from two to sometimes three days' difference in the emerging of the queens, with marked inferiority all along the delay, the last to emerge being worthless, showing that those that get the best attention from the start are superior in every way. "The proof of the pudding is in tasting." Why doesn't every one try these things for himself, and quit talking about using larvæ three days old in queen-rearing ?

APIARY OF VERNON BURT, MALLET CREEK, O.—SEE EDITORIALS.

A few of the queens emerged from the cells July 3, and the rest yesterday (July 4). All are fine, with hardly any difference in size.

Creek, N. C., July 5.

[We shall have to acknowledge, Mr. Pridgen, that you have rather x cell-ed us in cell-building as well as in the making of cell-cups themselves in a more wholesale way; and I suspect there may be a good deal of truth in what you say regarding the starting of these cups first in colonies recently queenless, after which removing them to the upper story of normal colonies.

The engraving on previous page is taken from a photo we made of the cells that Mr. Pridgen sent us. Our experience has been, however, that we got better results by giving only about a dozen cups at a time; but if black colonies are used, there is no doubt that 18 or 20 cell-cups can be given at once with equally good results. Pure Italians are the poorest cell-builders of any bees. The best are the Holy-Lands; then come the Cyprians, blacks, and hybrids.—ED.]

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A VISIT TO THE A. I. ROOT ESTABLISHMENT.

The Improvements that have been Inaugurated in the Various Departments.

BY R. F. HOLTERMANN.

Circumstances have prevented me for years from contributing any thing to the United States bee-journals. To be free to write upon any subject, and wherever opportunity appears to offer, is a privilege that only those who have been deprived of it can appreciate. Nothing in connection with his calling is of greater practical importance to the bee-keeper than to know where he can secure goods in connection with his business, and be able to purchase a design thoroughly up to date, of good quality and workmanship.

It has been my good fortune for years to visit once a year or oftener the manufacturing establishment of The A. I. Root Co., Medina, Ohio ; and in those visits the kindly spirit in which I have been received and shown through the factory, and the way in which I have had the different processes of manufacturing explained, have been to me a source of real pleasure as well as solid profit and instruction. But that is not all. I have been struck with the remarkable progress the company has made from year to year. From visit to visit I have noticed changes which one would think had resulted in perfection in a department, only to find, in a later visit, that still higher attainments had been reached.

Although perhaps better posted as to the development of bee-keeping in Canada through business and months of work in winter for the government at farmers' institutes, lecturing on bee keeping through the country in Canada, and although I have, time and again, been at bee-conventions in the United States, not only the International Bee-keepers' Association, now the United States Bee-keepers' Union, yet of the development of bee-keeping in the United States I know but little.

To visit the Root establishment from year to year I was, however, struck with the remarkable development of the business. It may not be due to the development of the business of bee-keeping in the United States, or in part owing to this development. I have, however, no doubt it is due to the excellent quality, workmanship, and design of the goods turned out, leading to the securing of more home trade. Then, too, the improvements which I have noted must lead to ever increasing foreign trade; and that this is actually the case I know from the class of goods which I have seen made.

Taking some of the leading departments I was particularly struck with the improvements made in the manufacture of comb foundation. If the firm will pardon me for frank criticism, when first I saw this department some five years ago there was nothing in it which interested and instructed me; in fact, I had seen better. With the adoption of the Weed process of comb foundation, however, there was a revolution; and although I have been over many times since, I believe that, without exception, each time there has been marked improvement in the method of manufacture, and a corresponding degree of excellence in the quality of the manufactured article. Every detail is looked into most carefully, from the crude wax in all shapes and colors, to the neatly boxed and papered comb foundation ready for the section or frame as the case may be. At some future time I may have something to say about the value of full sheets of foundation for sections, extracting-frames, and frames in the brood-chamber.

The next most striking feature was, in my estimation, the section-making department. During my last visit, I understand carloads were being made for export trade. Only those who have had some insight into the many difficulties connected with the manufacture of this line can appreciate the way in which these sections are turned out complete, white, without a particle of roughness, and folding with the least amount of breakage. As basswood becomes scarcer and scarcer, and sections go up, as they must, in price, surely bee-keepers before long will be compelled to get some substitute. What shall it be? or will they have to go back to the four-piece sections?

During my last visit it was my good fortune to see some very expensive machinery in operation, recently put in for the manufacture of hives. With the most suitable machinery, and buying lumber in cargo lots, we can readily understand how the best workmanship and material can be supplied for the money. Every good bee-keeper knows that the cheapest in the end is to buy good goods; the original cost is a secondary matter so long as the article is right, and many of us know that the best goods can not be sold for the least money; but as to prices, I have made no comparison. I have said nothing of many other departments, such as honey-extractors, smokers, comb-foundation machines, etc. These I must pass over for lack of space; but there are two other departments which I believe deserve special mention. First, the bees. I visited only the home apiary; but here in August the bees appeared to be quite busy working on sweet clover. I was surprised. At my home, Brantford, the bees have never done much on it. I do not know how much the bees directly contribute to the financial success of the business; but any one can readily see that a firm having hundreds of colonies of bees, and using the various appliances they make, is likely to have more practical appliances; and such an apiary or apiaries would, indirectly, be of great benefit to the bee-keeping customers of such a firm. Of course, there will be differences of opinion as to the way in which hives, etc., should be made; but on the whole the effect of practical experience must be very wholesome.

The printing department speaks for itself. I am anxious to see the new edition of the A B C, which was in process of development when I was there. I understand it will have many important changes; and, like the evolution of the bicycle, to be up to the times we shall have to purchase a new and sell the old to some one beginning, and who can learn much out of the old copy.

GLEANINGS is well known, and speaks for itself to its readers. I suppose there is no reader who would indorse every thing said by the editor. As long as the human mind thinks at all for itself it can come across no other human mind which will think just as it does; but we can indorse in a general way; and from the large circulation the paper has, and the steady progress it has made (I have its numbers from the beginning) it must have many warm friends.

About liquor and tobacco, the Roots and I will never quarrel. I believe friend Root could benefit many physically were he to urge the abandonment of drinking strong tea, or, for that matter, tea-drinking altogether, and especially for growing children.

Brantford, Canada, Sept. 25.

[It would hardly be proper for us to say much in a footnote, any more than that we thoroughly appreciate all the kind things that the former editor of a bee-journal and a manufacturer of bee-keepers' supplies has seen fit to say in regard to the machinery, equipment, and work of The A. I. Root Co. Mr. Holtermann has visited us a number of times, and certainly is in position to know whether we have made progress or not.—ED.]

S. W. B., Ind.—We usually figure on about 20 or 25 lbs. of stores for outdoor colonies, and 12 lbs. for those wintered in the cellar or other winter respository.

CALIFORNIA ECHOES

BY J. H. MARTIN.

When the price of honey drops to a low figure it is extremely hard to put the price back to its former place — witness the market reports. Now that there is a short crop all over the country, prices will necessarily be forced up. Is there not some way whereby they will be prevented from falling to such a low figure again?

This from an eastern paper: "The lawn-mower is hardly in working trim before the cobwebs have to be dusted off the snow-shovel; still, there is no use kicking; it will all be the same by and by." Why, man, it is all the same now. All you have to do is to come to California. Here the lawn-mower runs all the year round, and there are no snow-shovels.

California is now rejoicing over the first rain of the season. About an inch and a half has fallen, and it has blessed the entire State. There is usually a light rainfall in October, but the present rain is more abundant than for several years thus early. For six years the rainfall has been below normal. We have reasonable expectations that the rainfall will be abundant this time.

At the Philadelphia convention, Doolittle and Whitcomb object to Coggshall's plan of allowing bees to enter a house and clean the extracting-combs — too much annoyance. Why, brethren, don't you know that is just what Coggshall lives on? and the more annoyance the better. Then the fun of it is that, when the honey season is over, Bro. Coggshall hies himself away to a sanitarium to recuperate.

There is a great question agitating my thinking-garret just now, and all owing to the editorial talk about $100 queens. The problem is this: How can I get a hundred-dollar queen into each of my 100 colonies, and then how can I sell the hundred colonies at one hundred dollars each? I am sure I could throw in a few valuable articles with each colony. Any way, such a sale would come in handy after two dry seasons—equal to a gold-mine, hey?

Under editorials on page 724 I find that some one objects to plain sections on account of their being too well filled. Who is to decide that matter — the producer or the consumer of the honey? I have an idea that the consumer will select the *too well* filled section every time. Under the same heading are the bees with drone heads. When you breed from those queens you have ordered, will you be particular to have the young queens mate with drones akin?

I have just discovered two fine honey-plants, both vines of vigorous growth, and both good for covering screens, rocks, and old buildings. The bees work at a lively pace upon "rosa de montana," recently introduced from Guatemala. It blossoms but once a year, and that once lasts six months. The other vine, a species of tecoma, or trumpet-flower, was recently brought from China. From blossom after blossom I squeezed from five to eight large drops of nectar, tasting much like sap from the maple; but, alas! our hopes of gain from that wonderful nectar-producer are barred by having tubes so long and so narrow that the bees can not enter them. If we could educate our bees to tear open the base of the tube they would find a veritable bonanza.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE.

CARING FOR COMB HONEY AFTER TAKING THE SAME FROM THE HIVE.

Question.—Please tell us in your department in GLEANINGS if it will answer to take comb honey from the hive before all the cells are sealed up along the edges of the combs next the wood, and, if so, how is this unsealed honey prevented from running out of the cells in handling and during shipment? Also tell us something about moth-worms, or the larvæ of the wax-moth on comb honey in sections, and how they can be got rid of.

Answer.—I doubt whether there ever was a season since I have written about bees when I had so many inquiries about moth-worms and the care of comb honey as now; and from the letters received it would seem that, owing to the poor season, the larvæ of the wax-moth have been concentrated on the little obtained, thus being noticed more than in seasons of plenty. But, to the question:

The first requisite for caring for comb honey after taking it from the hives is a good warm room in which to store it. I use a room 7×10 feet, in the southwest corner of my shop, having the outside painted a dark color, so that the rays of the midday and afternoon sun will make it as warm as possible. Some use an upstairs room, which is still better, and which will generally be warm enough without any pains being taken with it, especially if this room is under the south roof of the building, with no partition between the roof and the room. The only objection that can be brought against such an upper room is the amount of heavy work required in lugging the honey up and down the stairs. Where an elevator can be used, it is just the thing. As a body of honey once thoroughly warmed will hold the heat for a long time, the average temperature of such a room will be pretty high, ranging from 80 to 100° most of the time, thus ripening the honey splendidly. The object of this is to have the honey growing better and better, instead of poorer, from the moment it leaves the hives, and have the honey in those unsealed cells, where there happens to be any, around the outside of the section next to the wood (which is spoken of above) grow so thick that it will equal any in the section.

Ofttimes it is better not to wait until these unsealed cells next the wood of the sections are *all* sealed over, as to wait for them to be so is often a great waste of time, especially for those near the outside of the surplus arrangement. When the honey is taken from the hive, that in the unsealed cells is so thin that, if the sections are held so the mouths of the cells are down, it will leak or run out badly; but by leaving it in a warm room as above for three weeks or a month it can be handled as you please, tipping it over, etc., and not a drop of honey can be shaken out ; and if, after it gets to market, it is stored in a damp cool place, it will be some time before it will take on moisture enough to affect it to any great extent. Perhaps all will not agree with me ; but I think that all comb honey should be stored in such a room at least a month before crating or sending to market, to ripen, or "sweat out," as it is most usually termed. I know that it is a saving of time and labor to crate it at once ; but I think it pays for all of this extra time and labor, in the better quality and appearance of our product.

Having the honey placed in a warm room, the next thing that will need our attention will likely be the larvæ of the wax-moth, as spoken of by our questioner. After the honey has been away from the bees for about ten days, where placed in a warm room as is here given, if we inspect the cappings of the honey closely we can detect little places of white dust, resembling flour, upon the surface of the comb, and usually most abundant near the bottom of the section. Although this place resembling flour may not be larger around than a fine needle, still it tells us for certain that a tiny worm of the wax-moth is there, and that, unless its death comes about in some way, while in this tiny state, it will destroy more or less of the nice white comb which encases the honey. While in one of our cities a number of years ago I saw sections of honey which had worms on them from ¾ to 1¼ inches long, and nearly as large around as a slate pencil, which had nearly denuded the honey of its nice white cappings, thus making it an object of loathing rather than of attraction, the same caused by the producer not knowing how to detect the first appearance of the worms, or being too shiftless to kill them after he had found them ; or, perhaps, being in too big a hurry to rush his honey to market, instead of ripening it as advised above.

If, after several examinations, you fail to find such little white flour-like places you may well be glad, for it is no small task to keep the worms from honey during the latter part of the summer and fall, where they are as plentiful as they were in this locality twenty to thirty years ago.

If you should find these flour-like places, the next thing is to sulphur the honey. To do this best, the honey should be stored on a platform raised a foot or more from the floor, and built of narrow scantling so placed as to form a sort of open net-work, this allowing the fumes from the sulphur to freely circulate all through the honey piled on the same. Having all in readiness, put some ashes in an old kettle, so that there will be no danger from fire resulting from the heat from the coals which are to be placed therein. Take the kettle of coals to the room, and pour sulphur (which has been previously weighed) on the coals, to the amount of ¼ lb. to every 75 cubic feet contained in the room, when the kettle is pushed under the pile of honey, and the room closed. Leave it thus closed for from twelve to fifteen minutes, when it should be opened to let the smoke out; for if allowed to settle on the combs, it will give them a greenish tint.

Just how the eggs get into the surplus apartment of the hives is not known; but it is supposed they are carried there on the feet of the bees. All combs having pollen in them are more subject to the moth than are those having no pollen in them; therefore those sections having any pollen in them should be kept separate from the main crop of honey. If more honey is put into the room later on, each lot so put in should be sulphured in about a week or ten days after putting in.

Only as we put our honey upon the market in the best possible shape can we expect to secure the highest prices for it, or expect that the price will be kept at paying figures ; and the person who knows how to put his honey on the market in the most marketable shape will not be the one to bring down the market price by underselling his neighbor, either, as do those who pay no attention to this matter.

HEADS OF GRAIN FROM DIFFERENT FIELDS

SQUARE CANS, KEGS, AND WOOD-FIBER PACKAGES FOR HOLDING EXTRCTED HONEY.

I can not help making a reply to your footnote, page 643, in which you inform me that square tin cans have honey-gates. Why, I am not as ignorant as I seem. I think I have read GLEANINGS over 20 years, besides other bee-papers, and catalogs. I know there are honey-gates, and I have used them. I also know that you have a bunghole strainer you send out with your extractors. If one is dealing in sweetened water, either may do ; but for *honey* I would class your honey-gates on a level with your cheese cloth strainer. A man would have to have a lease on life for about 999 years in order to draw or strain a few gallons of honey. Then the honey-gate does not protect the tin can from leaking while in transit. Another objection to the use of tin for honey, which I failed to mention in my article, is that, unless the can be thoroughly cleaned and dried as soon as empty, the little honey left in it will turn black and leave a peculiar scent in the can that I never could get rid of afterward. If you would put a vent-plug on the opposite corner of the honey-gate on the cans it would expedite the drawing of honey from the cans, but would, of course, make two places for leakage instead of one.

You say that tin cans are far ahead of the leaky wooden things, to your notion. That is not answering my plea for a wood-fiber or paper keg, which has no staves, no hoops, but could be made all in one piece—no shrinkage, no swelling, presenting nothing but a clean smooth surface which no acid can touch.

I also know the way you describe will make a honey-tumbler proof against leakage ; but does it make it proof against breaking the tumbler in opening? I wish you would give the wood-fiber or paper package, either in keg or square-can form, your second thought. I should like to see them put on the market. This package would suit any climate, and there is none more able to make the experiment of introducing them than The A. I. Root Co. THE AMERICAN TRAMP.

[Perhaps the kegs are more convenient for you at your end of the line ; but our experience is that nearly all kegs and barrels of honey, by the time they get to Medina, are leaking slightly, and some of them badly. Our honey-man, Mr. Boyden, is completely disgusted with these wooden packages. On the other hand, he says honey in square cans holding 60 lbs., usually comes through in good order, and is much more convenient to sell again, because the packages are smaller, and the honey can be sold in large or small lots. This seems to be the experience of Mr. Geo. W. York, of the *American Bee Journal.*

So far as I know, we have never had a complaint of the little honey-gate that goes with the square cans. While the bunghole strainer we send out may be inefficient for some localities, the cost is insignificant, and it can be thrown away, and something better used in its place; but in some of the large extracting-yards that I have visited, no strainers were used at all. The honey was run into large cans or barrels, and after it had stood a little while it was skimmed off at the top, after which it was drawn off from the bottom of the receptacle into the regular marketing-packages.

There is no doubt at all that kegs are much more convenient for the producer; but they are a great nuisance to the average *buyer ;* and in many cases it is the producer who has to pay for the leakage. He in turn becomes disgusted with his honey-man, as he naturally thinks he has misrepresented.

With regard to the wood-fiber or paper kegs, we gladly join hands with you in these ; but if you can find something that can compete in price with square tin cans or kegs you will do more than we can. We have had a good many samples of butter tubs and pails sent us, but they were too expensive.

Of course, there is always the permanent objection to glass packages, that they are not proof against breakage ; but for the purpose of retailing there is nothing else quite so good as and nothing cheaper than the jelly-tumbler. The self-sealing glass packages are better, but they cost a good deal more.

We are always glad to get criticisms and suggestions, and you may be sure that The A. I. Root Co. will do all in its power to introduce new and better devices. We shall be on the watch; and if we can find a paper or wood-fiber package such as you describe, and within the reach of bee keepers, we will gladly bring it before our bee-keeping friends.—ED.]

COLOR SAMPLES FOR CLASSIFICATION OF HONEY.

Friend Root :—Reading your footnote to Dr. Miller's Straw, p. 674, in regard to color-cards for classifying honey, I am reminded of seeing, years ago, a little scientific toy in the semblance of a fish, which, when placed in the palm of the hand, would curl and twist from the heat and moisture of the hand. I was told, if I am not mistaken, that it was made from gelatin in sheet form. It was as thin as paper, and transparent. The color was a bright red. As I said, it is some years since I saw it, and I do not know where to get a sample to send you; but perhaps you know what I am referring to. Would not this material answer for color samples? The question is, whether the colors would fade in course of time.

It might be cut into squares of a size to go into an ordinary letter envelope. For mailing, it should be placed between two pieces of thick pasteboard to avoid injury from the postoffice-stamps. I see that our postmaster has a handle attached to his receiving-stamp, and strikes the back of each letter with a force that equals the blow from a hammer of the same weight. The gelatin sheets might be placed between two pieces of clear glass, to protect them from dust, etc. If gelatin won't answer, how would colored glass do?

WM. MUTH-RASMUSSEN.

Independence, Cal., Sept. 28.

[Your scheme of using some transparent substance like gelatine, properly colored, would represent more nearly the exact shade or color of the honey than any printer's ink on cardboard. But I suspect it would cost considerable to get gelatine properly colored to represent the various shades.

But there is one general objection to this whole scheme ; and that is , that the colors of the various honeys vary according to the different localities. An exact shade that would answer for Ohio might not be at all practicable for New York.

A NOVEL MOTH-TRAP.

I have for years been fighting moths, and therefore never have any trouble with their getting into the hives and ruining colonies. A six-gallon lard-can, with some cider in it, is always kept in my apiary. I leave the can open during the night, and in the morning I put on the cover ; and when coming there again in the evening to take off the cover I take my dead enemies out of the cider and leave the can open. This is repeated all the time, and I never have any trouble with moths getting into the hives, as all the moths and bugs come right for the cider, and, of course, when they get into the cider they will never get out alive. I think this is the best and cheapest of all ways to get rid of all kinds of moths. Cotton-raisers should put out cider in their patches. Moths come a long distance for cider. If you have never tried it, do so, and you will find the first few mornings that your cider will be covered with moths, and from then on you will catch only a few every night. Sorghum cider, I think, is best.

UDO TOEPPERWEIN.

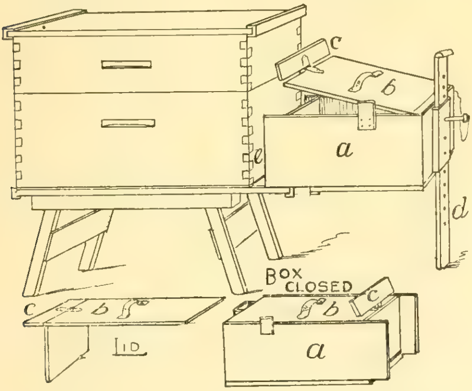
Leon Springs, Bexar Co., Tex., Oct. 3.

[As a general rule, when I see any description of some implement or device for catching moth-millers I pay but little attention to it, for, generally speaking, no *progressive* bee-keeper is troubled with them very much; and yet here is a simple little plan, where the moth are very plentiful, that may destroy large numbers of these pests.

Where bees are kept in box hives, and the bees are black, the moth miller does trouble somewhat; but a sprinkling of Italian blood, or if the bees, even if black, are kept on movable frames, will put the bee-keeper in position to handle these enemies of the bees very easily. All combs when out of the hive, or away from the bees, should be shut up in moth-proof rooms or boxes. If either is where it can have freezing temperature or winter weather, both the eggs and the moth-miller will be destroyed.—ED.]

THE JONES HIVING-BOX.

I inclose a drawing of a hiving-box of my invention. You will see how the box rests on the entrance at E. At the other end of the box at D is a stick with holes in it, running through a slot with a peg to hold it so as to raise or lower it to suit the bench. The box can be pushed up at E to fit the hive; and when the lid B is lowered the box is closed, with the exception of small lid C. Smoke bees between hive and box, and close lid C. Let them stand a minute; take off lid B, and brush bees to the entrance. They will go in, and never fight. I have managed my bees this way for two years, and never lost a swarm. Double them back as fast as they swarm.



The cleat F is to hold the lid on. I never cut out queen-cells nor clip queens' wings. I have several hiving-boxes, and hive them as fast as the bees swarm, and double them back in the evening.

G. S. JONES.

Cusseta, Ga.

[Your hiving-box will, no doubt, do its work as you describe; but it is a great deal of rigging to accomplish something that can be brought about much more easily in another way. When hiving swarms in an eight frame hive it is our practice to put on an *empty* upper story. The cluster of bees is then held directly over this story, and given a sharp quick dump, when the cover is immediately clapped on. There is no crawling in at the entrance; the bees simply find their way down among the frames; and in the course of an hour or two the upper story may be taken off, and the cover put down on the brood-nest proper. I have illustrated your device, not because I think it is practical, but because I think our friends often go "clear around the bush" when they might just as well take a shorter course.—ED.]

THOSE DIRTY FEET; TRAVEL-STAIN, AND WHENCE IT COMES.

I see much in GLEANINGS concerning travel-stain, and concluded, if permitted, to give my experience of 17 years with it on comb honey.

A. J. Wright says, p. 574, that bees do not have dirty feet. He may be right in one sense of the word, but their feet and bodies are certainly dirty enough to soil and darken any thing they crawl over continually for a considerable time. Now, it is natural to suppose if any thing is continually rubbed over any thing, in time the same will be soiled. Friend Wright mentioned tacking any thing white over a board so arranged that the bees will pass over it. He says, if left through the whole honey-flow it will not be soiled. This is not my experience. I always find the entrances of hives soiled if a strong colony is in said hive for a few weeks, and the hive just above the entrance is always soiled where the bees alight. If friend W. had taken the sheet of paper he mentioned, and cleaned his hands just as clean as soap and water could make them, and gently passed his hands over the same for 30 minutes he would have found the paper very much discolored; and as for the bees washing themselves, this tickles me. Mr. Root, you just imagine yourself working in honey, etc., as the little fellows do; and when you have something very white to handle that you don't want to soil, say you would go through the same performance the bees do, do you think you would be clean enough for the performance? or say you were going to bed on your wife's nice clean sheets and pillows, don't you think there would be some pretty bedding after sleeping on them a few times?

I find the bees discolor the comb more while idle than when at work. This, I think, is because the bees, being idle, lie around and crawl over the combs; and, too, they are gathering old black wax and propolis, and little bits of this get stuck to the cappings; and heat and bees crawling over it, the surface soon becomes discolored all over, and the heat causes the soft waxy propolis to penetrate the cappings the same as indelible ink will penetrate ivory.

Honey is a complete failure in this locality. I have had to buy sugar to feed my bees this year, the first time since I've been in the business. J. K. HILL.

Uvalde, Texas.

ROYAL JELLY NOT AN ESSENTIAL FOR DRONE-CELL CUPS OR THE DOOLITTLE CUPS.

On page 602 Dr. Miller, in speaking of getting bees to accept drone-cells the same as the artificial cups, thinks the royal jelly and not the size of cup makes the difference. I have made many experiments, giving royal jelly to one batch of cells and another batch beside them without any; and if there is any thing I am sure of about bee-keeping it is that it does not make one particle of difference whether you put in the royal jelly or not, either in artificial cups or drone cells. Any one who wishes to prove this can go and examine the cell-cups, as I have often done, two or three hours after putting in the royal jelly and the larvæ, and they will find the royal jelly licked out clean. I have examined them thus dozens of times, and never have found a single instance where the bees would leave the feed which I put into the cell. Even when every cell was accepted they have always removed the feed which I had put in, and then commenced to feed the larvæ to suit themselves.

About getting them accepted in colonies having a laying queen, I have had them accepted in upper stories, but it is very uncertain about the number they accept—generally very few; sometimes only one; so to make sure of getting enough I have them started in queenless hives. I can do this and still not have any queenless hives in the apiary. A few hours to half a day before giving the cells I remove the upper story from my cell-building colony, and place it on a bottom-board, then put a cover on the brood-chamber, and set it aside with entrance turned around; then the upper story is placed on the stand. Thus you see I have a colony made queenless ready to start the cells; then when the cells are well started, which will be in a few hours, the brood-chamber is put back on the stand; and the upper story, having the cells, is lifted off its bottom-board and placed back on the brood-chamber, having, of course, a queen-excluder between. I am surprised that Dr. Miller got them to accept worker-cells. I never tried it. W. C. GATHRIGHT.

Dona Ana, New Mexico.

R. S. H., Ala.—The greatest problem the bee-keepers of the South have to contend with is robbing and starvation. It is an actual fact that where bees can fly nearly every day through winter they require much more stores than in the North where it is very cold.

BEGINNERS' QUESTION BOX

BY E. R. ROOT

C. L. W., Iowa.—After the bees are once packed outdoors, better let them alone until along in the spring. Tinkering with them everlastingly through the winter will do more harm than good.

C. M. F., Pa.—Cakes of candy may be used as a winter food when nothing better can be had; but I should greatly prefer combs of sealed stores that have been reserved during summer and set aside for just such uses as this.

A. B. R., Mass.—As between sealed covers and absorbing cushions I do not know that I know which is the better. We have tried both for a period of several years. Some winters bees will do better under sealed covers, and in others the mortality will be less under absorbing cushions. Taking it all in all, I should prefer to have the cover sealed down by the bees, and then over it put some packing material, and then another cover to protect the packing.

J. G. M., Minn.—I would not try to winter indoors or in the cellar unless the temperature outside ranges near the zero-mark for six or eight weeks at a time. Where the winters are somewhat open, changing from a thaw to a week of cold weather, then back again to warm or stormy weather, during which the temperature ranges at freezing or above, I would by all means winter *out*doors. When the temperature outdoors is *above* freezing it is very difficult to keep bees *inside* quiet.

E. W. P., Ill.—With the best winter repository that has ever been constructed, bees will fly out and die on the floor, and if they are not swept up, 75 or 100 colonies in a cellar 10 ×10 may furnish dead bees, before spring, sufficient to cover the floor an inch or two in depth. These are probably the superannuated bees; and if they were in hives on their summer stands they would fly out just the same; but as they would scatter over all outdoors they could not be found. For this reason some have thought that bees die more in cellars than outdoors.

C. F. F., Wis.—For small horse powers suitable for running a light buzz-saw for hive-making, there is probably nothing better than a small gasoline-engine of one or two horse size. The one advertised in this issue by the Pierce Engine Co. is well adapted to the purpose. Gasoline-engines are comparatively cheap now, and do not require an experienced engineer to run them. Indeed, they have practically displaced nearly all the small-horse-power *steam*-engines. For larger powers the steam-engine is both cheaper and more economical to run, because it can utilize any kind of fuel—wood, coal, and rubbish. Where there is enough bee-hive work to be done, the refuse under the boiler will furnish sufficient fuel to run the machinery.

EDITORIAL BY E. R. ROOT

LOOK out for our next issue. It will be a regular boomer in size and general subject-matter.

OUR readers' attention is directed to the very low clubbing offers we make elsewhere in this number. Don't fail to look them all over carefully, as we can save you money. In many cases we can furnish you some agricultural paper and GLEANINGS both for a whole year at the price of either alone. In other cases a slight advance on the price of one of them buys both of them.

REFORMED SPELLING.

WE are getting quite a number of responses or votes in favor of the shorter spelling in GLEANINGS. So far not a single dissenting vote has been received. Mr. M. D. Andes, of Bristol, Tenn., writes: "At first I was opposed to the changes; but after reading the *American Bee Journal* for a time I rather like it. I would approve of the changes suggested by N. E. A., on page 762." It looks now decidedly as if our subscribers would favor the changes suggested.

At present I do not think it would be wise for us to go so far as the *American Bee Journal* does, although in time we may see our way to go the whole figure. Considering the varied class of printing we are doing for other people, such a change would involve an endless lot of work in proof-reading, and doubtless many mistakes.

NEW YORK'S INSPECTOR OF FOUL BROOD.

OUR readers will remember that within a year a foul-brood law, modeled somewhat after the plan of the one that has accomplished such good results in Wisconsin, was enacted by the legislature of New York. It provides that, when a case of foul brood is discovered, complaint shall be made to the Commissioner of Agriculture, who shall thereupon appoint some person to go and inspect the bees, and, if diseased, provide for the necessary cure. But, unfortunately, this law was passed or amended, rather, *after* the commissioner had made out his estimate of the funds he would require in his department; and although foul brood is or has been found in some sections of New York, there are little or no funds available by which competent persons can be sent to make the necessary inspections and carry out the regulations provided by law.

Mr. N. D. West was appointed inspector, and has, I believe, at his own expense, with possibly some assistance from the State, been making inspections, and doing what he could to stay the ravages of the disease. He finds that some of what is thought to be foul brood is something else—a diseased or pickled brood. Specimens of this have been sent to the general government to be examined by the Bacteriologist in the Department of Agriculture; and other specimens have also been sent to Bacteriologist Dr. W. O. Howard, of Fort Worth, Texas, and in a short time we shall know just what this new disease is.

In the mean time it is to be regretted that there are not now funds by which a thorough canvass of the State can be made by competent persons to hunt up the disease and see that the law is enforced; for it provides that any bee-keeper having the disease in his apiary, who "shall sell, barter, or give away any honey, bees, or appliances from said diseased apiary, or expose other bees to the danger of said disease . . contrary to this law" is "guilty of a misdemeanor, and shall be punished by a fine of not less than $30 nor more than $100, or by imprisonment."

In the mean time, the bee-keepers of any district that is troubled with this disease, or with any disease, should co-operate, and, if necessary, raise a fund so that the inspector can visit the locality and make those who are disinclined to obey the law come to time.

Later.—I have just received a letter from Bacteriologist Howard, of Texas, in which he says he has examined, microscopically, several specimens of affected brood sent from New York, and that *none* of them are foul brood, or in any way related to that disease. It is an entirely new malady, differing from pickled brood. Dr. Howard is not ready yet to make a complete report, but will do so later for GLEANINGS. In the mean time it is of the highest importance that the bee-keepers of York State know the result of the experiments thus far, as it may save burning of colonies, and possibly of whole apiaries, for what is supposed to be foul brood, but which is not that disease at all. The fact that this new malady is in many cases reported to disappear of itself—a thing that real *Bacillus alvei* never does—rather confirms Dr. Howard's diagnosis. In the meantime bee-keepes of New York are to be congratulated that at least *some* of the affected brood is not the dreaded foul brood.

THE APIARY OF VERNON BURT; APPLE-TREES IDEAL SHADE FOR AN APIARY.

ON page 798 of this issue will be seen a half-tone from a photo of the Burt yard. Large old-fashioned apple-trees form the principal shade except where the apiary has grown so large as to crowd out beyond the delightful coolness under these trees. As Mr. Burt has all his queens' wings clipped he is not bothered by being obliged to climb these trees to get his swarms. As I have before explained, when a swarm does come forth he removes the brood-nest, places a hive with empty combs or foundation on the old stand, sets the super formerly on the old hive on the new one; lays the caged queen at the entrance, and goes about his work.

These large spreading trees, the limbs of which are scarcely six feet above the ground, form a most delightful shade—an ideal protection from the rays of the sun, according to my notion. Perhaps two dozen large trees protect very nearly a hundred of his colonies;

and whenever I go to visit Mr. Burt I find it very convenient to sit down on a hive, munch an apple, and talk bees. Many and many a time have we lain down in the shade, facing the entrance of some particular colony whose bees were rolling in the mellifluous sweetness —zip, zip—faster than one could count. It was on one of these occasions that I had impressed into me the great value of a wide and deep entrance, because I saw how the bees would make a swoop, and land clear to the middle of the bottom-board, and very often strike a cluster hanging down, without touching wood of any sort. In the same way with Dr. Miller at his home apiary I watched the incoming of the field-bees as they swooped through the wide entrances clear on to the cluster.

I never enjoyed working with the bees very much in the hot sun; indeed, I have thought they were very much crosser then than when there is a comfortable shade over them, and a good big wide entrance, so that a large proportion of the bees do not have to be wasting their time fanning in order to keep the brood-nest down to the requisite temperature: and did you ever think that small narrow entrances require more fanners — more workers *from* the field, if you please — than the wide ones? If you do not believe it, stop off at Medina some time during the honey-flow and we will take our bicycles and lie down under the shade of those large trees at the Burt yard.

IMPROVEMENTS FOR 1900.

JUST now the members of the Root Co. are studying how they can improve certain of their standard supplies. Hives, supers, sections, etc., will be changed but very little; in fact, they will be practically the same as last year. There will be a slight change in the construction of the cover and a new combined bottom and hive-stand, which will be appreciated by our friends. The Daisy foundation-fastener will be improved, and the solar wax-extractors will be changed enough so as to put the wax in marketable form as soon as it is melted by old Sol. The large honey-extractors, four and six frame, will have the main journal ball-bearing. But this will not be used on the smaller machines, as there would hardly be gain enough in the small size to warrant the expense.

SQUARE VS. TALL SECTIONS.

A good deal has been said in our columns in regard to the relative selling qualities of the square and tall sections. When I visited Mr. Vernon Burt once last summer I looked over the honey he produced, both in square and tall boxes. The sections were plain, and were separatored off in the supers by fences. Indeed, all the conditions, so far as colonies, supers, and every thing else were concerned, were as nearly identical as they could be made.

It has been claimed, I believe, that tall boxes would be better filled than square ones, as if the mere matter of dimensions had something to do with the filling. While I never challenged the statement, I could never really believe it; but on this particular occasion above referred to I took particular pains to note whether tall boxes were any better filled than the square ones. Selecting an average lot from different supers, not the best ones, I placed a row of four tall ones on top of a row of four square ones. In the illustrations produced elsewhere on page 786 it will be noticed that the filling is practically the same in both lots; and it is just exactly what any one of common sense might expect, for the conditions were as nearly identical as it is possible to make them.

But the reader will notice that I have the same lot of sections put up in two different ways. In Fig. 1, one lot is set *beside* the other; in Fig. 2 the tall ones are set *on top* of the square ones. In the last named the contrast is not particularly striking; but in the first mentioned, Fig. 1, the contrast is quite marked, for the tall boxes appear considerably larger, notwithstanding they hold no more honey in pounds and ounces than do the sections right beside them. If the sections are placed thus it is evident that the consumer would pay more for the tall boxes than he would for the others. The former look larger, and to a great many, outside of the question of bigness, they have a more pleasing proportion. Sometimes I think the square sections are fully as pretty as the others, and at other times I have the opposite notion; but after the honey is cut out and put on the plate, the square chunk is certainly more in keeping with the general proportion of the plate than the oblong one. If the tall section is more pleasing in appearance to the *average* consumer, then that is reason why it should bring as much or more money. There is no deception.

It is admitted that comb honey has been selling too low, even in the years of good supply. It is almost impossible to advance prices on the same article; but it *is* possible, by changing the form of the package, to secure a higher price. Then the old question arises: If the consumer has been paying too low a price for his honey, or, in other words, robbing the producer, is it right for the latter to *purposely* deceive him a little by making him *think* he is getting a larger value for the larger size of package? If we put the question in *exactly* that form, there can be only one answer; but that statement of the proposition is hardly a fair one. If there were no 4¼ sections produced, and the honey were in tall boxes exclusively, which is the case in some markets, then there is no fooling of consumer, and no robbing on either side. If, as I said, the tall section by itself is more pleasing, the consumer buys it because he wants it. Taking it all in all, one would be exceedingly unkind to declare that, because some one preferred and sold his honey in tall boxes, that person was robbing the consumer. There is such a thing as being finical, or overnice, in points of this kind. In straining at a gnat we might swallow a camel.

Our sales for the past season show that, in a few years at least, the tall sections will forge well to the front. That astute bee-keeper, Capt. Hetherington, who has been getting from one to two cents a pound above the market price, knows a good thing when he sees it; and it is the tall boxes he has been selling, and it is that box his customers will have. Alack the day when any one shall say that he or any one else who sells these boxes is not doing as he would be done by!

THE EXTERMINATION OF THE BASSWOOD; THE LARGEST LINDEN IN THE WORLD.

THE principal honey source of the northern part of this country is usually said to be white clover. The next in importance to that is basswood. These two honeys from these sources are so nearly alike in color and taste, to the average consumer, that all white honey, whether clover or basswood, is called white clover. But that there is a distinct difference, both in the flavor and color, to the *producer* is equally true.

These two sources, in the Northern States at least, have contributed mainly to the income of the bee-keeper. Take away both, bee-keeping as a business would scarcely be known in some of our Northern States. The clover-fields have been yielding to the inroads of civilization. Intensive agriculture now takes the place of many localities where once was white clover in the months of June and July. True it is, that immense quantities of clover honey are still produced annually in the United States — probably more than was produced in the earlier part of this decade — not that *each* bee-keeper produces more clover honey, but there are *more* who are utilizing isolated fields of clover that heretofore have wasted their "sweetness on the desert air."

If the clover has been slowly disappearing from certain sections of the country, much more rapid is the cleaning-out of the basswood, or linden, as it is called in some places—a tree that is especially valuable — yes, almost indispensable—to the bee keeper. Second in the source of honey, its lumber goes to make something like fifty millions of sections every year. The supply-manufacturer has been blamed for killing the goose that lays the golden egg. But the goose-killing was commenced first and carried on far more extensively by furniture-makers. Since there has been such a sharp advance in the price of lumber, especially of pine, basswood has been used by planing-mills for regular house-building purposes. It is still cheaper than pine; and contractors, in order to meet old figures, have been compelled to take a cheaper lumber, with the result that basswood has been taken. Some of the most extensive lumbermen say they can see in our northern forests only about ten years' more supply of this favorite timber. The basswood areas are getting to be more and more scarce, with the result that section-lumber will have in time to be of some other less desirable timber.

The problem is indeed a serious one. The States of New York, Pennsylvania, Michigan, Wisconsin, and Minnesota, that have produced such large quantities of basswood honey, will possibly in the future have to depend upon clover and other sources; and instead of ranking among the leading States for honey, they may possibly in time drop down to second place.

Already supply-manufacturers are beginning to consider what material they will have to use for sections when basswood is gone,* or at least has advanced to such a price that it will be out of the question for section-box making. Mountain poplar has been suggested; but the trees are small, and very difficult to get. Pine could not be used, because the timber would hardly be tough enough to stand the V groove right-angled bend in the one-piece section; and even if it would its price would place it where it could not be used for the purpose. There is a possibility that some time in the future we may have to content ourselves with the four-piece sections, for the timbers that will stand the V-groove bend are very limited; indeed, I do not know of any other kind than the basswood.

But perhaps you may ask why supply-manufacturers use this valuable timber when it is so much needed for honey. For the simple reason that the furniture-makers and planing-mills will use it if we do not. What care they for the bee-keeper who desires to produce honey?

THE GIANT BASSWOOD AT LINWOOD PARK.

Last summer a part of the "Rootville" folks, together with some friends, camped at Linwood Park. The name "Linwood" is quite suggestive of the fact that the park or grove must have quite a number of basswoods in it; but the name originated, not from these but from one giant tree of that kind that stands near one corner of the embankment of the shore of Lake Erie. This tree is a magnificent specimen — the largest basswood I have ever seen; and I doubt if there is a larger tree of its kind in the United States. I secured a photo of the lower part or trunk of the tree itself, and on page 785 will be found a half-tone reproduction of it. In the open-is a young man of about 18, with his bathing-suit on. Inside of the tree there is a hollow space or room sufficient to take in a whole family of six or eight people. Indeed, the tree is eight feet in diameter, and its lofty branches tower above all other trees in the grove. I tried in vain to secure a photo of the tree as a whole. Although I used three different cameras the light was so poor that none of the pictures were entirely satisfactory; so I shall have to leave the reader to imagine its magnificent proportions after examining the engraving showing the trunk of the tree, in this issue.

Linwood Park, named after this particular tree, is situated about half a mile from Vermillion, on Lake Erie. If you will consult your map you will see that Vermillion is about 30 miles directly west of Cleveland, and about 25 miles from Kelley's Island, celebrated for its grapes. The park contains a large number of other basswoods; but none of them begin to approach the majestic size of the one whose trunk it is our pleasure to present in this issue.

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* If Canada should be annexed, or the tariff on lumber abolished, the days of grace would be considerably extended

OUR HOMES,

BY A. I. ROOT.

Blessed are the pure in heart, for they shall see God.—MATT. 5:8.

Keep thy heart with all diligence; for out of it are the issues of life.—PROV. 4:23.

A great many of my bicycle-trips are over toward the great city of Akron, Summit Co., O. I say *great* city, because Akron is a very much larger town than our own county-seat of Medina. Summit Co. adjoins ours on the east, so the distance is only about 20 miles between here and Akron. The Summit Co. Fair, held in Akron, is usually one of the last of the county fairs, and is held during the first week in October. As there are many potato-growers in Summit Co. I usually go over there to examine their very nice show of fine potatoes as well as fine apples.

There are some things about a county or state fair that I like, and there are other things that I do *not* like. I like every thing connected with the farm, and I like to visit with the farmers; but I dislike every thing on the fairground that would lead our boys away from the thought expressed in our little text. I am sure our friends will excuse me if I speak plainly, and touch upon some of the things that are not often mentioned in print. Several times in these Home Papers I have spoken about the provision that our fairgrounds afford for the personal health and personal comfort of those who attend our fairs. Convenient and comfortable closet arrangements on the fairgrounds, or for any like large gathering of people, is quite an important matter; and I am very glad to say that of late there seems to be general progress all around in this direction. It does not take much money to provide something that is both neat and tidy as well as convenient.

At the last Akron fair I happened to go into a closet almost the first thing when I alighted from my wheel and went on the grounds. I had just looked it over and had pronounced it well arranged, when four young boys came in. Now please, friends, excuse me again if I put right in print the words they used. We can not really combat an evil understandingly until we know all about it. One of the boys, without any provocation, and without any disposition to complain of any thing, said, as he stopped near me, "Jesus!" I glanced up quickly and perhaps somewhat reprovingly, although I did not say any thing. His companion noticed me, and evidently, to pain me still further, or perhaps just for sport, followed his companion by saying, "*Christ* Jesus!" Then the third one of the boys ejaculated, "Jesus, lover of my soul!" Then the fourth one put in, "Yes, Jesus, lover of my soul, come fly to my bosom." These boys were perhaps from fourteen to sixteen years old. They purposely and deliberately gave me a glimpse of the state of their young hearts. And, by the way, what a strange thing it is about blasphemy and obscenity, that they almost always go together! A part of community regard the name of Jesus as the most sacred and holy name that can be spoken. It is the dearest name to the devoted Christian that he knows, because it is the emblem of love, mercy, purity, and every thing that is good and holy. Now, can any one explain why men and boys who have a bad spirit in their hearts seem to have pride and delight in coarsely and rudely taking the name of Jesus in vain, and thus trample under foot, as it were, every thing sacred, pure, and holy?

We as American people fling aloft the stars and stripes as the emblem of our land of liberty; and our highest ideas of patriotism center about this American flag with its stars and stripes. Suppose somebody who feels ugly and bitter toward us should take it into his head to tear down this flag the people have raised, and should tear it to pieces and trample it in the mud. By this act he would give pain to every true American. I need not tell you what true Americans would *probably* do to him. Few men have ever lived who would dare to undertake such a thing; and yet the boy or man who, in a coarse and unfeeling way, takes the name of Jesus upon his foul lips does a thing which, to all Christian people, is not unlike the tearing down and casting into the mire the American flag. Why does *anybody* who claims to be decent or fair do such a thing, any way? Why did these young boys choose this means of showing off before a gray-headed stranger? Where did they come from? Where did they get that kind of education and bringing up? Did their mothers really know how they were behaving when away from home, and what thoughts and feelings were actuating their young minds?

Toward night I called at a home where I have visited a good many times within the last few years. A bright young boy (just about the age of those I have spoken of) gave me a welcome warm enough to assure me at least *one* member of the family was glad to see me. He and I have had a good many talks in times past, and I am a good deal interested in him and in his work. A short time after I arrived his mother said, with a bright smile on her face, "Mahlon united with the church two weeks ago last Sunday." And then Mahlon and I had another good talk. A young minister came to their parish last spring. He has been quite successful in getting hold of the young people in that neighborhood. He not only knows how to grow potatoes and how to shingle houses, but he can play ball and join in with the boys in all kinds of harmless and innocent games; and Mahlon says he is just about as nice a man as there is anywhere. A few minutes later it was my pleasure to take the young pastor by the hand, and have a little talk with him. Oh what a contrast between this young boy, with his heart full of every thing good and pure, and the four boys I have just mentioned meeting on the fairground! And what a contrast, too, between them and that bright educated young minister! Why, dear friends, it seemed to me as if nobody realized what a great gulf yawned—at least spiritually yawned—between those boys; and they were brought up, too, perhaps, in almost the same neighborhood. Will you excuse me if I go back a little?

Three years ago Mahlon's father moved into that neighborhood. In their former home, either they had been too far from church, or for some reason or other, I think they did not attend church very much, although the mother was a church-member. The family had moved on to this new farm; and as their means were somewhat limited they were obliged to give a mortgage on it. I talked over the prospects with them, and suggested that they help lift the mortgage by growing potatoes. I told them where the best potato ground was, in my opinion; and as there were several nice springs on the farm I was a good deal interested in the farm as well as in the family. Near by is a very pretty little church, and I exhorted them rather vehemently, perhaps, to go to church and attend Sunday-school, and to get into the "harness" and to help work for the kingdom of God and his righteousness. I think I repeated my favorite text with considerable emphasis—"Seek ye first the kingdom of God and his righteousness, and all these things shall be added unto you." I told them that, if they took hold of God's work, and did their part, the great Father would take care of the mortgage.

At first there were some discouragements in the way of attending services regularly, and helping along in the work of righteousness. But by and by they began to reap their reward, as I was sure they would. In a little more than a year the father had united with the church, and was full of enthusiasm with regard to church work. Pretty soon he had a class in Sunday-school; and the boy, in due course of time, followed the father. Why shouldn't he? Although he is not quite sixteen years of age, he begins to banter his father playfully by saying he can do almost as much work as his father—that is, certain kinds of work. I do not know but he can pick up potatoes a little faster; but perhaps he could not stand it right along as many hours in a day. The boy of sixteen ought not to be required or *permitted* to stand it like a man of thirty or forty. Perhaps I feel more interested in the boy because he is just about Huber's age. A boy of sixteen, full of energy and life for either play or work, whichever stands before him, is a beautiful sight to see, any way. There has been a good deal of talk about girls of that age—"sweet sixteen." But I begin to think I like to look a boy in the face when he just begins to look manly and talk *manly*, as much as I like to see these pretty, graceful young girls when they just begin to look *womanly*. There, I almost forgot to say that I love such boys, and love to look into their faces *when* their words and actions indicate they are pure in heart.

When Mahlon was telling me about their young minister, and what a nice man he was, I recognized at once that he loved the man because he himself was pure in heart. Our text says, "Blessed are the pure in heart, for they shall see God;" and Mahlon was just beginning to get *glimpses* of the great Father, perhaps through the teachings of the young minister, and because he *is* pure in heart. His mother did not say she was proud of him; but, dear friends, young and old, how could any mother help being proud of the boy who unites with the church and gives his heart to God just as he begins to develop manliness and manly strength?

But now, what about those other boys—those who took *delight* in letting me see the depravity and iniquity that were in their hearts, young as they were? Where did they get that talk? I told you Akron is a great city. I think there are between 65,000 and 70,000 people in it now. Akron boasts of the wonderful growth she has made; of her water-powers, steam-powers, of her great manufactories, and of her mills; but I do not know whether Akron boasts of her 160 saloons or not. I have heard them mentioned frequently; but, come to think of it, I do not believe I ever heard anybody brag of the number of *saloons* they have there. And now we have come to the source of that foul talk. Those boys, young as they were, were growing up, either in the saloons or surrounded by saloon influences. Somebody asked recently why tobacco-venders decorate their packages with the most obscene pictures the law will permit; and also why the saloon-keepers are constantly furnishing the boys with pictures the law would *not* allow; but they take the precaution of passing them out to the boys on the sly. Yes, I have seen the pictures. I have gone into the saloons and found them on the counters. The saloon is in open *hostility* to the church; and as the church holds up purity and godliness, the saloon constantly works for *im*purity and *un*righteousness. The Anti-saloon League has done some work in the way of prosecuting law-breakers in Akron, but not very much comparatively. When 160 saloon-keepers are banded together, and have succeeded in getting the greater part of the police on their side, "what will the harvest be?" No wonder the boys learn to swear before they are sixteen. The Sunday-school and the Endeavor societies are doing a tremendous work to counteract these evil influences; and every Christian man or woman who gets a boy away from the saloon and into the Sunday-school is doing a greater work than he knows of. But why are so many of our people *half-hearted* about all this? Why do so many yawn and act sleepy when you ask them to go to church or Sunday-school? Is this a time for sleeping? Satan never sleeps. Perhaps the Sunday-school may be dull and uninteresting. Perhaps you do not *feel* like going; but, dear me! what has *feeling* got to do with it, anyhow?

Yesterday some children were having a picnic. It was out in an old orchard. They had forgotten to bring any water along. Some of them started off with a pail, saying, "There is an old well over here, and I am sure we can get some water there." Then I remembered what I had many times heard of, that old unused wells are very likely to contain the germs of typhoid fever or diphtheria. I stopped the children, but they started off again. Somebody said they were going to a farmhouse well near by. "But," said I, "are you sure the people who live there are using the water from that well?" Then somebody stated that the water got very bad in the spring, and they hadn't used it at all during the summer. If the children went there to that well and drank a great lot, thirsty as they were, before anybody stopped them, it might mean sickness for the whole crowd, and possibly death to one or more. Such things have happened more than once; in fact, we have been told, during this past season, of several cases of sickness and death just because a whole party of picnickers ate or drank something that contained contagion.* Now, suppose *your* children were in the act of drinking from one of these foul wells because they *were* children and did not know any better; would you be sleepy and dull, and plead as an excuse for doing nothing that you did not feel "interested" in the matter? Yet, my friends, the contagion these younger ones get from saloons and other like places is a *thousand times* worse than typhoid fever or diphtheria. Our country is shocked continually by stories of crime, murder, and suicide. These suicides that are so frequent are simply the harvesting of the crop that has been maturing through long years. The simple fact that the Sunday school is right squarely opposed to the saloon business *ought* to be enough to make us all *interested*, *wideawake*, *and on our feet*, no matter whether we feel like it or not. There are many readers of GLEANINGS who, perhaps, do not agree with me in my ideas of the Bible or of the Christian religion; but who is there among you who would want to hear his boy take such words on his lips as I have mentioned in the fore part of this talk of mine, in the same spirit? Who would want to find out that his boy was a frequenter of saloons before he was sixteen years old? Who would not feel troubled and worried to know that this same boy had his mind full of vile thoughts, and that his boyish imagination was stirred into a flame by pictures that none but Satan's vile skill could ever paint? Drink, tobacco, and cigarettes follow along speedily nowadays; and while it used to take forty or fifty years to get a boy away from the Sunday-school and down to the suicide, now these new agencies do the work in half a dozen years, and every little while we hear of suicides, the direct consequence of these influences I have mentioned, before the boy is fairly of age.

Mahlon's parents are discussing the matter of his education. When he talked with me about it I told him it depended largely on what he expected to do for a living. I told him of Huber's decision; and with some reluctance he confided to me, or if he did not say it I gathered it from his conversation, that if he thought he could ever do such a work as that young minister is doing in that neighborhood he would like to prepare himself to preach the gospel of Christ Jesus. It made me think of the time when I stood near the pulpit where dear Bro. Reed was preaching. I thought that, if I ever could in any way, direct or indirect, help him to plead with a lost and sinful world, I would rather do it than any thing else. Dear brother or sister, is *your* boy in his teens growing up to love righteousness and hate iniquity, or is it the other way? God forbid that it may be said of any boy of that tender age that he is learning to love *iniquity* and to hate *righteousness*; and yet sometimes, dear friends, I fear that well-meaning people sometimes prejudice the boy against righteousness by little flings at the Christian religion, the church, or the Sunday-school. At the Omaha Exposition a man who stood outside of one of the tents in Midway said if there were any Sunday-school boys present they had better go home, for that was no place for them; and then the crowd laughed their approval or smiled it, thinking, evidently, *they* were a great deal superior to the boys who go to Sunday-school, and whose *hearts* are *pure*.

NOTES OF TRAVEL

BY A. I. ROOT.

Let us lay aside every weight, and the sin which doth so easily beset us, and let us run with patience the race that is set before us.—HEB. 12:1.

About the middle of October a letter came from a nephew of mine, who is much interested in agriculture, saying he expected to visit the fair at Randolph, Portage Co., Ohio, and that if I could make it convenient he would very much like to have me come over on my wheel, as he would not have time to call at Medina this trip. Now, we generally have some beautiful days about that time in October. There will be a good deal of sunshine in the middle of the day, but at night there is often a frost; therefore I feared to go away from home without my overcoat and fur cap. I might have taken a train at least half the way; but I so much prefer wheel-riding I started out early in the morning with said overcoat and fur cap tied to my handle-bars. Before I had gone many miles the sun shone so warm I took off my undercoat also, and rode about 25 miles with all this weight—a weight that I did not need at all, and which I should have been much more comfortable without. When I had gone part way I found my nephew would not get in before the evening train, and I greatly wanted to pay a visit to my cousin,

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* After the above was in type I found the following in the *Daily News and Herald*, of Cleveland:

"COLUMBUS, O., October 19.—At to-day's meeting of the State Board of Health, Secretary Probst reported that he found the typhoid-fever outbreak at Conneaut, in which there were ninety-four cases and twelve deaths, due to bad water taken from the lake by the local water company."

Now may the Lord be praised that we have a State Board of Health that hunts up the cause of such malignant outbreaks, and promptly applies the remedy; and may the time soon come when some officer of the law or servant of Almighty God shall in like manner ferret out and promptly abolish these cesspools of sin that not only corrupt the body but send to eternal ruin both body and soul.

Wilbur Fenn, who, I thought, must be about ready to dig his potatoes. I started off on my wheel just in my shirtsleeves. Oh what a contrast! While making 25 miles with my two coats and cap weighing about 5 pounds, I became so fatigued I began to think I was almost too old for wheel-riding; but after I deposited my useless clothing and started off in my shirtsleeves with nothing to carry—why, I felt like a schoolboy released from school. And now please, dear reader, do not think me irreverent when I tell you that I could not help thinking of Christian in Pilgrim's Progress after he had been relieved of his burden; and then this beautiful verse—the first one in the twelfth chapter of Hebrews—came to mind. Why, with my 20-pound wheel I went up hill and down, through sand and over rough places, and had strength and to spare. A wheelman very soon learns the importance of laying aside every weight, as Paul puts it. I always get rid of every useless thing in my pockets; in fact, it seems as if I could tell the difference between a silver dollar and a paper one, so I carry paper money as much as I can. I change my heavy shoes for light ones, and use the lightest clothing that will keep me comfortably warm. In fact, I have been for some years considering the matter of silk underwear. You know silk gives more protection for the weight than almost any other fabric.

Well, I found Wilbur out in the field with several men testing a new potato digger. The potatoes were Rural No. 2. The yield was rather light, and the potatoes had been pretty well hilled up to their detriment, during the severe drouth just passed through; but as it was, the potato digger, with a light team of horses, did very nice work. This digger is the Improved Standard. I mentioned it in my writings a year ago. Cousin Fenn is raising this year, principally, Carman No. 3 and the Russet—a potato I have mentioned several times. This Russet, on his ground, proves to be so nearly scab-proof that he thinks we can not find a scabby potato in some two or three acres, although there are some that are pretty badly scabbed among the Carmans on the same ground. Well, we talked potatoes and strawberries so long that it was after dark before I got started home, and there I was in my shirtsleeves; but the weather was quite warm, and the moon was almost full; so I got back to my cousin's, and greatly enjoyed my moonlight ride. Now, I am getting to be almost too old to be "moonshiny," but, notwithstanding, there is something to me particularly fascinating and exhilarating in riding by moonlight. The wheel I am riding now is not the Columbia chainless; but it has a gear-case so the chain and sprocket-wheels are just as well protected as the bevel gear in the chainless. The Columbia people refuse to make a wheel lighter than one weighing about 27 lbs.; and such a wheel would carry safely a man weighing 250 lbs., while I weigh only about half that. Now, I protest against being loaded down with a machine heavy enough to carry a man who weighs twice what I do. It is right on the principle of the verse I have quoted in regard to laying aside every useless weight.

Now, this is not Home Papers, friends; but, notwithstanding, I wish to say a word about going through life loaded down with sin—or, if you choose, the memory of sinful acts—when you go to bed at night or open your eyes in the morning. Who can compute what a hindrance it is—how it spoils all our enjoyment and happiness—to be loaded down with the recollection of sins unrepented of, or wrongs you have done your fellow-men that have never been righted! Oh! let us be boys as long as we live. Let us leave the useless weights, and go about the world in our shirtsleeves, especially when it is hot weather; and let us also, no matter what the cost, get rid of these burdens of sin; then we can run or ride or play.

Next morning I started out to catch my nephew and my uncle. They did not know of my determination to be one of the party, and therefore when I reached "Uncle Ben's," "Aunt Mary" informed me they had left for Randolph about ten minutes before my arrival. How long do you suppose it took me to catch up with a horse having ten minutes the start of me? Had it been on level ground I might have done better; but as it was over hills, and sandy ones at that, I had made two miles before I managed to run ahead of them and asked them to halt. Now, we could not visit very well while I was riding a wheel, so I left mine at a farmhouse and got into the buggy. After we had ridden a little way I discovered my two relatives expected to stay till night, while I had planned to make Medina, between thirty and forty miles away, before Sunday came. This Randolph fair has been kept without a miss for 41 years. It is near a small country town, or you might say four corners, and therefore the fair is held only one day. As there is a very nice farming community in that neighborhood they manage to have a pretty fair country fair. But before I reached the fairground I was greatly interested in a large apple orchard. Some 3000 bushels were picked, and lying on the ground. In fact, they were just being assorted and barreled. I managed to have a little chat with the owner of the orchard; and here is a pointer he gave me to which I invite the consideration of our experiment stations. I told him my Keiffer pears were one-fourth wormy, nothwithstanding the trees were sprayed four times.

"Mr. Root," said he, "you did not put on enough Paris green."

"But we put on enough to injure the foliage somewhat."

"But suppose you did injure the foliage. You had better have the leaves of your tree hurt a little, or, say, a good deal, than to have a quarter of your apples made unsightly and unsalable by worms. I make my solution strong enough with copper sulphate and Paris green both to scorch the leaves on almost every tree; but I have no wormy apples. See if you can find one. Two years ago an accident taught me a lesson. I bought Paris green and copper enough for my whole orchard. But I was sick, and could not attend to it. The hired men came to me when they were not more than half done, saying they were out of chemicals. I told them they had been making the solution too strong. They said they found it out after they had gone a little way, and made it weaker. Now, on the first trees they sprayed they killed pretty nearly all the foliage. I supposed the apples were done up, and perhaps the trees also; but it was a bad year for apples, and about all the crop I had was on those trees they had sprayed so unmercifully. More leaves came out in place of those that had been killed, and more blossoms came. The fruit was later, but it was free from scab and worms."

At both the Akron and the Randolph fairs there were more Carman No. 3 potatoes on exhibition than any other kind. Quite a few potatoes were wrongly named. There were potatoes at both fairs labeled "Early Ohio," but I am sure not a potato at either place was a genuine Early Ohio.

Well, by one o'clock I had seen all the fair I cared to, and had a little visit with my relatives, and I was ready to go home. But my wheel was six miles out in the country. My friends almost insisted on taking me that far with a horse and buggy; but to do this, somebody had got to leave the fair just at a time when the racing and bicycle-riding were going on. I told them that, rather than make them that trouble, I would start a little earlier and go those six miles on foot. My friend, how long would it take *you* to walk six miles? I thought I could do it easily in an hour and a half; but it took just two full hours, and it was awful hard work at that. As I did not want to be seen on the fairground in my shirtsleeves I carried my light coat; but before I had made the six miles I felt as if I would have given 25 cents gladly to have somebody carry it for me. It took me two hours to go on foot a distance I could easily have made in 30 minutes with my wheel. When I once got my hands on it I thanked God with unusual fervor that he permitted me to live during the age of wheels. Now, something queer happened right here. I had been many times curious to know whether one could ride a wheel with vigor after he has been tired out by going on foot. I was just about used up walking those six miles that warm day; but when I got hold of the wheel I sat on its easy comfortable seat and rested. The set of muscles that help you walk are used scarcely at all in propelling a wheel; or, in other words, the muscles needed to push that wheel up hill and down over those sandy roads did not seem to be tired at all by my exhausting walk.

Because of the longer time it took me to walk the six miles, I found I could not make my train at Akron, and so I stayed over night with the friends I have mentioned in the Home Papers, and enjoyed the pleasure of listening to the young minister of whom Mahlon thinks so much.

Just about as soon as I could see, Monday morning, I was on my wheel again; but I did not have any coats or fur cap to bother me. I bundled them all up and told my friends to express them to Medina the first time they went to Akron. Oh what fun it was riding those 25 miles during that beautiful October morning, almost before people were up and stirring! All along the road—that is, early in the morning—I met people with overcoats, gloves, and fur caps, and even then shivering in the damp and almost frosty air; but I in my shirtsleeves, and with my vest unbuttoned, was warm, happy, and well. I had a light lunch at starting, and then I had my breakfast at about half way. I have learned by experience that it is not best to undertake to ride too far before breakfast. When you are just tired enough to think of resting a little, and have a real good chance, then get your breakfast. After a good meal and a little rest you can ride a good many miles before noon, if need be. But please bear in mind, if you wish to enjoy wheel-riding you must put your requirements into a very light package or else send them forward by express, to reach you about the time you will have need of them; and do not forget, dear brother or sister, through this journey of life, to put aside in like manner the sin which doth so easily beset us, as we have it in that beautiful passage I have quoted. Then shall we run and not be weary; and we shall walk and not faint. Yea, we have the promise in the Scriptures that we shall mount up with wings as eagles; for they that wait upon the Lord do renew their strength.

HEALTH NOTES

BY A. I. ROOT

ROBBING DEAF AND LAME PEOPLE; A SEQUEL TO ROBBING SICK PEOPLE.

One of our readers in Mississippi sends me a lot of circulars from one W. J. Tindall, of Cohoes, N. Y. The writer of the letter to me is deaf; and Tindall claims, after long years of study and experiment, to have invented an apparatus to cure deafness of every description. He calls it an electricon. I clip the following:

> The electricon applies a mild currant of *pure galvanic electricity* directly to the diseased or weakened parts of the ear and its connections, and to the nerves of hearing, re-establishing perfect circulation, and giving full tone, strength, and life to each affected part.

I do not know whether the kind of "currants" he is writing about is the kind that grows on bushes or not, but he spells it that way. And, by the way, these medical frauds are almost sure to betray their ignorance by their bad grammar and bad spelling. Tindall tells a long and pitiful story of how he first went to the family doctor with his deafness, then from one city specialist to another, all making him worse instead of better; and then he says a great scientific man (who does not doctor or do any thing else for *money*) told him that medicines and instruments could never cure deafness; it would have to be done by means of a galvanic *currant* (c-u-r-r-a-n-t, mind you). But this doctor told him (sadly) that no such apparatus had then been invented, but he expected it would be before very long. Then Tindall went to work experimenting, and after much pains and great labor he invented the electrical apparatus that does the business. Our Mississippi reader wants my opinion of it.

First, I do not believe that any kind of current of electricity, or electricity in *any* form, will ever build up diseased tissues as he tells about; secondly, I am quite sure that this apparatus of Tindall's has not any thing to do with electricity at all. It is like Electropoise and the glass castors (that are advertised to put under the legs of the bed) and all these traps. They have nothing to do with genuine electricity at all. The price of the electricon is a good deal; but friend Tindall, out of the kindness of his heart (?) toward deaf people, will sell a pair for $7.00. These are wholesale prices, and cover only the cost of making the apparatus. Furthermore, he explains to all why he must positively have cash in advance, no matter how much money a man may have, or what his commercial rating may be. He *must* have cash in advance, or no sale. This last opens the way for a little story from my own experience, in our next issue.

Special Notices by A. I. Root.

See our clubbing offers on page 814 for those who renew before their present subscription expires.

CHOICE POTATOES FOR SEED.

NAME. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
Red Bliss Triumph........	$ 18	$ 40	$ 25	$ 40	$ 75	$ 1 25	$ 3 00
Bovee..........................	18	40	25	40	75	1 25	3 00
E. Thoro'bred, Maule's..	18	40	20	35	60	1 00	2 50
Early Ohio.....	18	40	25	40	75	1 25	3 50
Burpee's Extra Early...	18	40	25	40	75	1 25	3 00
Freeman	18	40	20	35	60	1 00	2 50
New Queen	18	40	20	35	60	1 00	2 50
Monroe Seedling...... .	15	35	20	25	40	75	2 00
Rural New-Yorker No. 2..	15	35	20	25	40	75	2 00
Mill's Prize................	15	35	20	25	40	75	2 00
Carman No. 1	18	40	20	35	60	1 00	2 50
Carman No. 3	18	40	20	35	60	1 00	2 50
Sir Walter Raleigh.....	18	40	20	35	60	1 00	2 50
State of Maine.....	15	35	20	25	40	75	2 00
Manum's Enormous......	18	40	25	40	75	1 25	3 00
New Craig	18	40	25	40	75	1 25	3 00

Seconds of any of the above will be half the price of firsts, with the understanding that the seconds contain not only the small potatoes but those that are scabby, prongy, or cut in digging. The scabby ones are good for seed if treated in the usual way with corrosive sublimate, but they are a little more trouble.

Please notice there are no seconds at half price in potatoes postpaid by mail. The principal part of the price of potatoes by mail is for postage stamps; and Uncle Samuel does not have any second quality of postage stamps that he sells at half price. Another thing, when you go to the expense of paying postage on potatoes, you will naturally be supposed to want the very best and nicest that can be picked out.

ADDITIONAL LIST OF SEED POTATOES.

Since giving our list on page 733, Oct. 1, we have dug our miscellaneous varieties, and I have concluded to offer for sale the following kinds briefly described:

Poor Man's Friend.—A large blue potato; good yielder; good quality. Several of our hands said, while we were picking these potatoes, they looked exactly like the old Blue Victor—a potato that at one time had a big run.

Adirondack.—A large handsome potato much like Carman No. 3; good yielder, good quality.

Queen of the Valley.—A good deal like the New Queen, but has grown larger for us this year; perhaps not quite as early as New Queen, however.

Hundredfold.—A potato advertised with large claims, by Salser.

Bugless.—This is a very strong grower, good yielder, and is about as near being "bug-proof" as the New Craig

Lee's Favorite.—A well-known medium-early sort.

The above are all late and medium-late varieties. The prices will be the same as Carman No. 3 in table.

Of early and extra early we have Early Vaughn, Early Andes, Early Vermont, and Twentieth Century. The prices are the same as for the Early Ohio in the table.

Last, but not least, I have purchased of Wilbur Fenn 100 bushels of the new Russet potato, said to be scab-proof. Yesterday, Oct. 25, I hunted over a large field of his that had been heavily manured with green stable manure, on purpose to make them scabby if they ever do become scabby; but I was not able to find a really scabby potato anywhere, even where the most manure had been put on the poorest spots; but the same treatment made Carman No. 3, right alongside, show quite a few scabby potatoes. Another test was made by planting them in an old garden that had been for years badly infested with scab; but where other some varieties were so scabby as to be fit for nothing, the Russet showed scab on only a few potatoes, and but very little of it. In our Oct. 1st issue I reported that the Russets on our own place showed some scab; but after washing the potatoes and giving them a more careful examination I found that what I had taken for scab was the work of wireworms. Taking it all in all, the new Russet comes the nearest of being scab-proof of any potato I have ever got hold of. Prices will be the same as for Early Ohio in the table. All the above, with the exception of the Russet, will be sold in seconds at half price—that is, as long as the seconds last. If you are going to order this fall, better send soon, so as to be sure to avoid frost.

CONVENTION NOTICES.

That "irrepressible" Colorado State Bee-keepers' Association will hold their annual convention Nov. 27, 28, and 29, in the State House, Denver, beginning at 10 A. M. As usual, the State Agricultural College will assist us Every one should come loaded with ideas and subjects for discussion, and those who can not come should write soon to the secretary or president and tell the needs of your locality or what you want the association to do. The members will be the program. We know from experience that you will make a lively convention. Come, everybody. There is sure to be "a hot time in the old town."

R. C. AIKIN. Pres., Loveland, Col.
F. RAUCHFUSS, Sec'y, Box 378, Denver, Col.

I am well pleased with the Danzy hive. We had some of the finest honey this year that I ever saw.

Alpena, Mich., Oct. 2. ALLEN KING.

Dear Brother Root:—I am glad you have quit sending for patent medicine, and taking it to see whether it is good for any thing, as I do not think it your duty to become a martyr for the benefit of your readers.

MRS. F. I. SCHUYLER.

I have sent my order for supplies to W. A. Selser, Philadelphia. I have so far used no goods but yours, and will continue to do so as long as you treat me right. JOSEPH SCHATZLE.

Carbon, Pa.

THE PICTURE OF THE CAULIFLOWER-FIELD IN OUR LAST ISSUE.

Mr. Root:—The photo was taken the 12th of August, 1899, just as we were tying the plants to stakes. The picture also represents our style of irrigation with cotton hose. The man is using 300 feet of hose, with only half a head of water, as the plants at this stage of growth are very brittle, and a full head would crush the stalks. The plants commence blooming by the middle of July, and continue until about the last of August. At this time there is no other bloom on the island, and the bees just tumble over one another for the nectar the blossom secretes.

Fidalgo, Wash., Oct. 19. H. A. MARCH.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., - - Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dept.
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DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making this request when ordering.

RECEIPTS FOR MONEY. We send no receipt for subscription money. The change of the date on the little label shows you that the money has been duly received and credited. During December and January it sometimes takes us three or four weeks before the date is changed.

RATES OF ADVERTISING. These will be furnished on application.

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We offer GLEANINGS IN BEE CULTURE to new subscribers three months for 15c, or 6 months for 25c. Renewals not accepted at these rates.

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As an inducement for our subscribers to renew before the expiration of their present subscription, which saves us considerable time, we offer the following rates for Gleanings one year and a year's subscription to any of the following papers at prices mentioned:

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The Ohio Farmer, Cleveland, Ohio.

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The Michigan Farmer wants every one of our readers to give their paper a trial. They offer to send it every week to Jan. 1--9 weeks--for only 5c. It is a finely illustrated agricultural, live-stock, and family paper--just what you want. Send the 5c in stamps and try it. They will positively stop it Jan. 1 if you don't renew. They are all right. We offer it in our club list by the year. Address at once

The Michigan Farmer, Detroit, Mich

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Until you see my 39th annual catalog. A full line of hives and fixtures best adapted to our New England climate. Also best brands of **Comb Foundation and Section-boxes.** I have also made arrangements to keep quite a general stock of

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Parties desiring these goods can get them of me, and **save freight charges.** Bees, Queens, and Nucleus Colonies from the **very best strains** in America. A forty-page illustrated catalog free. Address

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Being so situated to make shipping connections via St. Louis or Kansas City to good advantage. FREE, 40-page catalog full of instructions.

JNO. NEBEL & SON, High Hill, Mo.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

Some Inducements
To Subscribe for the Review.

I have found that it pays to offer some little inducement to a man to become a subscriber to the Bee-keepers' Review. Nothing in this line has met with greater success than the offer of back numbers of the Review. Back numbers of the Review are different from those of newspapers and some journals. The information that they contain is just as valuable now as when first published. Each issue of the Review, especially if devoted to the discussion of some special topic, as is the case with all of the copies printed during the first five or six years of its existence, is really a little pamphlet containing the best thoughts and experience of the best men upon the topic under discussion. Some issues are now out of print; of others only a few remain; while of others there is still a good stock on hand. Instead of letting these back numbers lie on my shelves, gathering dust year after year, I think it better to use them in getting new subscribers, and at the same time have them out doing good. I shall, therefore, as long as these back numbers hold out, send 12 of them free to each one who sends me $1.00 for the Review for 1900. The selection of these back numbers must be left with me; but I will see to it that no two are alike. In addition to these back numbers, all new subscribers for 1900 will receive the rest of this year free. The sooner you subscribe, the more you will get.

W. Z. Hutchinson, : : : Flint, Michigan.

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can be secured from the same hens if fed **Green Cut Bone.** It is not only the best egg producing food known, but it also imparts vigor and constitution, which means working force and ability. Makes hens lay longer; no break-down or "laying off."

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is the best machine for preparing all kinds of bone for poultry food. Made in many sizes to suit anybody's needs. **They cut fast, fine, turn easy and don't choke. CLOVER CUTTERS** that cut clover fast and easy. Swinging Feed Trays and Mann's Granite Crystal Grit. Send at once for our **FREE** illustrated catalogue.

F. W. MANN CO., Box 37, MILFORD, MASS.

SPECIAL NOTICES BY BUSINESS MANAGER

Send your renewal for GLEANINGS before your subscription expires, and get the benefit of our clubbing offers on page 814.

PROSPECTS FOR A CARLOAD OF HONEY.

As we go to press, the outlook is encouraging for our getting a carload of white alfalfa honey from Nevada. It will be part extracted and part comb. The extracted, in 60-lb. cans, two in a case, will be worth 10 cts. per lb. in five-case lots. The comb. in 24-lb. cases, and not less than five-case lots, will have to bring 16 cts There is no nicer honey than white alfalfa. We should be glad to hear from any who can use it at above figures. By next issue we shall know more definitely what we can offer.

Advertiser's Department of Short Write-ups.

Historical Sketch of a Representative Firm.

The above is the heading of an article in the anniversary number of the *American Grocer*, and has reference to one of our advertising firms, Francis H. Leggett & Co., whose ad. appears on the second page of this number. In this sketch by the *American Grocer* mention is made of the establishment of this firm by Mr. Francis H. Leggett some thirty years ago. From comparatively small beginnings it has grown to be one of the most important in New York, the business being distributed in twenty-six departments. We copy the following from the sketch above mentioned:

"The assertion of the house that the name of Francis H. Leggett & Co. is never coupled with an equivocal statement, even upon the most insignificant label, passes unchallenged wherever their goods are known. In the selection of his business partners Mr. Leggett has been singularly sagacious and fortunate, for he has gathered about him a staff of gentlemen who are entirely in accord with the founder's principles and policy."

CRUSHED OYSTER-SHELLS!

60 cts. per 100-pound bag.

Mica Crystal Grit, 70c; Clover Meal, $2.

WHITE POULTRY BONE, $1.90.

Cash with order. Lower prices on large lots. Time to lay in winter supply.

The O. C. Shepard Company,
Public Square, Medina, O.

In writing, mention Gleanings.

Here is the Thing You were Looking for the last winter

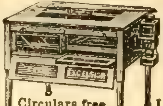
The New Champion Winter-case

which does away with all unnecessary work, and in which the bees will not die in the coldest winter. Send for special prices on quantity wanted.

R. H. SCHMIDT,
Sheboygan, - Wisconsin.

In writing, mention Gleanings.

FOR SALE.—Pure extracted honey, 8½@9½c per lb. Sample, 5c. Comb honey, 24-lb. crates.
I. J. STRINGHAM, 105 Park Pl., N. Y.



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BY STEAM—with the simple, perfect, self-regulating
EXCELSIOR INCUBATOR
Thousands in successful operation.
Lowest priced 1st-class hatcher made.
GEO. H. STAHL,
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Circulars free.
Send 6c. for
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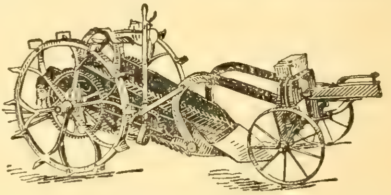
For Sale.

100 colonies in dovetailed 10 frame hives, mostly thick top and Hoffman frames; bees Italians and hybrids; prime condition; about 50 to 60 lbs. stores per colony; within ¾ mile of depot; can load on car at price about equal to value of stores in hives if sold at once.

Albert Wittenmyer, = Emison, Indiana.

How are you Going to Dig your Potatoes?



It is time in most places to be digging potatoes; and, in fact, in most places it is past time. If you want something that will put the potatoes *all* on top of the ground, and do it, too, with one good strong team, you probably can not do any better than to use the Dowden potato-digger, made by the Dowden Mfg. Co., Prairie City, Iowa. Drop them a postal card, and they will cheerfully give you all the particulars, answering every question anybody will probably ask in regard to the machine. Mr. A. I. Root, of The A. I. Root Co., is using one with excellent satisfaction in digging his crop of potatoes grown expressly for seed.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Nuclei and full colonies of bees, for delivery in April; South preferred. Will furnish nuclei boxes. I. J. STRINGHAM, 105 Park Pl., N. Y.

WANTED.—Bees or pedigreed Berkshire hogs—one or both—as part or full payment for 80 acres wild land in Clay Co., Ark., ten miles from county seat. Ten years' time given on balance, at 3 per cent interest. Also want good incubator in exchange for strawberry-plants. GEO. E. COON,
200 Klemp St., Leavenworth, Kansas.

WANTED.—To sell or exchange 8000 plants of the Darling strawberry, at 35c per hundred, postage paid. H. FITZ HART, Dalkeith, Fla.

WANTED.—To exchange three acres land, 18 apple-trees, barn, house, etc., in Washington, Ct. Consider bee-supplies, etc. What have you? Write
DR. BALL, Litchfield, Ct.

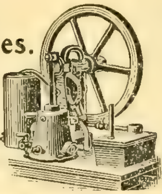
WANTED.—To exchange a No. 1 B Mann's green-bone cutter (cost $7.00), used but little, for Planet Jr. strawberry-cultivator or offers. Also A B C of Bee Culture for A B C of Potato and Strawberry Culture.
C. M. SPENCER, Glenmont, N. Y.

WANTED.—To exchange Florida lake-front lot in center of Keuka. From lot can be seen school, church, store, depot, postoffice, and hotel. Want bee-goods. What have you? DR. BALL, Litchfield, Ct.

QUEENS FOR BUSINESS.

WARRANTED. As they run, 50 cents each; select, 75 cents; tested, $1.00; select tested, $1.50 and up. For particulars see Sept. 15 Gleanings and free circular.

J. B. CASE, Port Orange, Fla.



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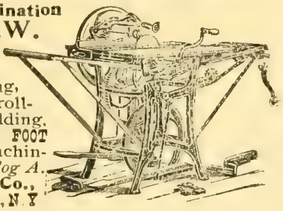

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Seneca Falls Mfg. Co.,
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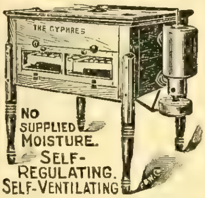

INCUBATORS

The Cyphers.

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NO SUPPLIED MOISTURE.
SELF-REGULATING.
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Warranted to last **10 years** without repairs and to **out-hatch** during three trials any other incubator—bar none; **this or your money back.**

BUILT FOR BUSINESS—SOLD ON HONOR. 16-page illustrated circular and price list **FREE.** Poultry Manual and Catalogue No. **74,** (160-pages, 8x11 in.) entitled, "How to Make Money with Poultry and Incubators" sent postpaid for 15c. in stamps—**worth dollars.** Address nearest office.

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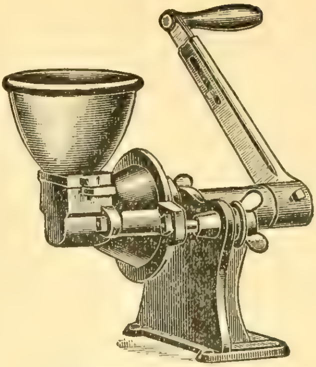

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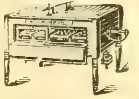
Be your own Miller....

Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**

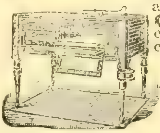
Address **The Frank Machinery Co., Buffalo, N. Y.**



DON'T TAKE CHANCES!

Buy no Incubator and pay for it before giving it a trial. The firm who will not sell on trial have no faith in their machines. We sell the celebrated **PREMIER INCUBATOR ON TRIAL.** Also sole manufacturers of **Simplicity. Catalogue and Poultry Helps, 5c.**

Columbia Incubator Co., 8 Adams St., Delaware City, Del.



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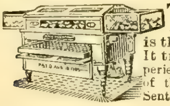
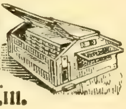
They have all the latest improvements and are sold at very low prices and **GUARANTEED** to please every customer. Send 6c. for our 148 page catalogue which contains full descriptions of our extensive line and tells how to raise poultry successfully. Send for it at once.

DES MOINES INC'B CO.
Box 3 Des Moines, Iowa.

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is the very latest, up-to-date authority on the poultry business in this country. It treats the entire subject in a masterful way drawn from years of ripe experience in conducting the largest pure blood poultry plant in the country. Treats incidentally of the newest and best things about the world famous **Reliable Incubators and Brooders.** Sent to anybody for 10c to cover postage. **Reliable Inc. & Brooder Co.. Box B 49 Quincy, Ill.**

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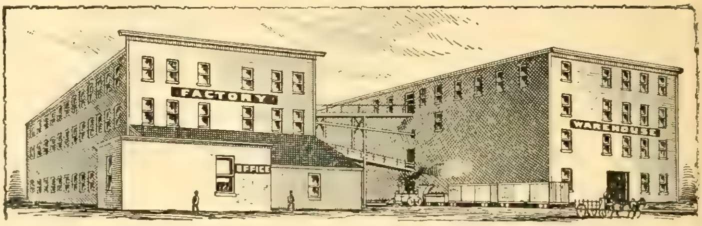

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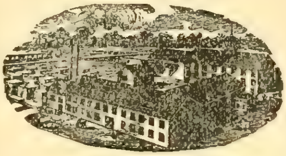

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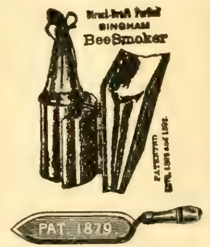
January 27, 1897. Truly, W. H. EAGERTY, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

New York.—Comb honey, white, fancy, 15@16; No. 1, 12@13; No. 2, 10@11; amber, fancy, 11@12; No. 1, 9@10; mixed, fancy, 10@11; No. 1, 8@9; buckwheat, fancy, 9@10; No. 1, 8@9; New York State extracted, white, 7@8; light amber, 6½@7½; buckwheat, 5½@6½; Florida extracted, white, 7@7¾; light amber, 6½@7; amber, 5½@6½. Extracted honey, from other Southern States, 60@80 cts. per gallon, according to quality, flavor, color, etc.

Francis H. Leggett & Co.,
Franklin, West Broadway, and Varick Sts.,
Nov. 8. New York City.

Cincinnati.—There is a good demand for all kinds of extracted honey. White clover and basswood sell at 8@8½; amber, 8; southern, 6@7, according to quality and package. We have quite a trade on buckwheat honey. We should like to hear from parties having any to offer. Fancy comb in no-drip shipping-cases sells at 15@16; darker grades, hard to sell at any price. Beeswax, 26. We do not handle honey on commission—buy for spot cash only.

C. H. W. Weber,
Successor to Chas. F. Muth & Son,
Nov. 7. 2146-48 Central Ave., Cincinnati, O.

Boston.—Our market continues in splendid condition. While the supply is light, yet, owing to the high prices, it seems to be quite equal to the demand. Later on, when the trade realizes the shortage more thoroughly, the demand undoubtedly will be much better. We quote our market as follows: Fancy white, 16; A No. 1, 15; No. 1, 13@14. Buckwheat will not sell in this city. Extracted light amber, 7@8 We advise shipments to be sent forward at once.

Blake, Scott & Lee,
Nov. 7. 57 Chatham St., Boston, Mass.

New York.—The demands for both comb and extracted honey are equal to the receipts, leaving the market in such a condition as to maintain prices equal to the opening of the season. We quote fancy white, clover, 1-lb. comb, 15; A No. 1, 14; No. 1, 13@13½; No. 2, 12@12½; No. 3, 10½@11½; fancy buckwheat, 11; No. 1, 10; No. 2, 9; mixed, 9@11. Extracted, white clover, 8; light amber, 7½; buckwheat, 6@7. Beeswax, demand limited, 26@27.

Chas. Israel & Bro.,
Nov. 8. Cor. Canal and Watts Sts., New York.

Kansas City.—We quote No. 1 white comb, at 13½@14c; No. 1 amber, 13@13½; No. 2 amber, 12½@13; No. 2 white, 13@13½; extracted, white, 7½@8; amber, 7@7½; dark, 5½@6. Beeswax, 22@25.

C. C. Clemons & Co.,
Nov. 19. Kansas City, Mo.

Schenectady.—No change of any importance in prices. We think most of the comb honey is now on the market, and meeting with ready sale. Extracted will soon be in demand. We quote light, 8@9; dark, 6@6½.

C. McCulloch,
Nov. 9. Schenectady, N. Y.

Milwaukee.—The demand for honey has been very good, and we have enjoyed a fair degree of the trade; while the supply has not been burdensome, it has been sufficient to meet the current demand, and values well maintained, and thus the demand has been somewhat checked. We continue to quote fancy 1-lb. sections, 15@16; A No. 1, 14@15; No. 1, 12@14; best amber, 14@15; extracted white, in bbls., kegs, and pails, 8@9. Beeswax, 25@26. A. V. Bishop & Co.,
Nov. 9. Milwaukee, Wis.

Chicago.—There is a firm tone in all kinds of honey. Even buckwheat sells easier than of yore. Sixteen cents is obtainable for the best white comb which we class as fancy, and 15 for No. 1 grade; stained or off grades of white, 13@14; amber, 10@12; dark to buckwheat, 9@10. Extracted white clover and basswood, 8@6; ambers, 7@8; dark, 6@7. Beeswax, 27. All of the foregoing wanted on arrival.

R. A. Burnett & Co.,
Nov. 7. 163 S. Water St., Chicago, Ill.

New York.—Good demand for all grades of comb honey at the following prices: Fancy white, 15; No. 1 white, 13@14; amber, 11@12; buckwheat, 10@11. Extracted also in good demand, and we quote California white 8½@9; light amber, 8@8½; amber, 7½; buckwheat, 6½; southern choice, 7½; other grades, 70@75 per gallon.. Beeswax, quiet at 26@27.

Hildreth & Segelken,
Nov. 8. 120, 122 West Broadway, New York.

Philadelphia.—The supply of honey is getting well used up, and prices are very firm. We got 18c for some very fancy clover comb this week. This is high-water mark. We quote fancy comb, 16; No. 1, 14; amber, 12; buckwheat, 12. Extracted, white, 8; amber, 7. Beeswax, 25. We are producers of honey—do not handle on commission. Wm. A. Selser,
Nov. 9. 10 Vine St., Philadelphia, Pa.

Buffalo.—Honey is in very good demand here. Very little new honey in the market. I think high prices will continue until next season's crop is ready for the market. Fancy, 14@15; A No. 1, 13½@14; No. 1, 12@13; No. 2, 11½@12; No. 3, 10@10½; No. 1 dark, 9@10; No. 2 dark, 8@9; extracted, 7@8.

Nov. 7. W. C. Townsend, Buffalo, N. Y.

Albany.—Honey market continues firm, with light supply. We quote fancy white, 15@16; No. 2 white, 13@14; mixed, 12@13; dark, 11@12; white extracted, 8½@9; amber, 7½@8; dark, 6@6½. Beeswax, 26@28.

McDougal & Co.,
Successors to Chas. McCulloch & Co.,
Nov. 9. Albany, N. Y.

Columbus.—High prices curtailing demand somewhat, but receipts being light all move fairly well. Can use some light amber to good advantage. Fancy white comb, 16@17; amber, 11@13. Will either buy, or handle on commission. Evans & Turner,
Nov. 7. Fourth and Town Sts., Columbus, O.

Detroit.—Very little fancy honey. A No. 1 is in good demand at 16@17; darker grades, 12@14. Extracted honey very scarce. Beeswax, 23@25.

Nov. 10. M. H. Hunt & Son, Bell Branch, Mich.

Springfield.—Fancy, 16@18; No. 1, 14; buckwheat, 12@14. The demand is good, and it is selling very well. Perkins & Hatch,
Nov. 9. Springfield, Mass.

Wanted.—Extracted honey of all kinds. Mail sample, and price expected delivered at Cincinnati. I pay spot cash on delivery. C. H. W. Weber,
Successor to Chas. F. Muth & Son,
2146-48 Central Ave., Cincinnati, Ohio.

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I. J. Stringham, 105 Park Pl., New York.

Wanted.—Comb and extracted honey. State price, kind, and quantity. Blake, Scott & Lee,
57 Chatham St., Boston, Mass.

Wanted.—Your honey. We will buy it, no matter where you are. Address, giving description and price.
Thos. C. Stanley & Son, Fairfield, Ill.

Wanted.—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,
163 South Water St., Chicago, Ill.

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ILLUSTRATED SEMI-MONTHLY

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VOL. XXVII. NOV. 15, 1899. NO. 22.

STRAY STRAWS FROM DR C. C. MILLER

MR. BRADLEY says, on a piece of land where the sandstone contained an acid the honey did not candy; on another piece of shale and clay, without acid, the honey candied.—*Australian Bee Bulletin.*

W. C. GATHRIGHT is surprised that I got bees to start queen-cells by putting jelly in worker-cells. Nothing surprising when you remember that bees often start queen-cells of their own accord when young brood is put over an excluder with a laying queen below. Later in the season I tried putting jelly in worker-cells over an excluder again, and it was an utter failure.

I'M SURPRISED that you get votes in favor of shorter spelling and none against. I beg the great public's pardon for thinking it more prejudiced than it was. If that proof-reader ever gets started on the reform track, he'll spel wers than York. [Votes are still coming in in favor of the shorter spelling; and up to the present writing only one dissenter has reported, and that is Mr. Harry Lathrop, of Browntown, Wis.—ED.]

J. F. MUNDAY says in *Australasian Bee-keeper*, he prefers a record on a hive to one in his pocket, for the book might be lost. But I wouldn't have a book so small it would go in my pocket, so it isn't easily lost. Sometimes I've decided whether I needed to go to an outapiary by consulting my book. In that case, if my only record was on the hives I'd have to go five miles to learn whether I needed to go that five miles.

ON PAGE 799 is figured "20 or 25 lbs. of stores for outdoor colonies, and 12 lbs. for those wintered in the cellar." Isn't that a bit risky—at least for this locality? [You mean that the 12 lbs. for indoor wintering is a rather scant supply, I suppose. Well, perhaps it is for your locality; but a set of tables that Dr. Mason prepared a few years ago made it appear that between 6 and 7 lbs. was a fair average of what his bees actually consumed during winter; possibly for your locality, 15 lbs. would be a safer figure for indoor wintering. But it is a fact that indoor bees require less than those out.—ED.]

W. H. PRIDGEN says (797) that I'm mistaken if I think because a larva is accepted in a Doolittle cup it is always fed from the start as a queen should be. I don't know that I ever said that; but I certainly did think that, if bees accepted a larva less than three days old in a cell-cup, it was all right for a queen, because scientists tell us the food of all larvæ is alike for the first three days. If practical men have enough proof to show that the scientists are wrong, I'm ready to desert the scientists.

"APPLE-TREES ideal shade for an apiary," says a heading, p. 805. So they are in Ohio. But in this region a man musn't live too long if he wants to continue believing in apple-trees as ideal shade. The young apple-trees I began putting my bees under have mostly died from old age. [I thought the apple-trees at your home apiary afforded very good shade for your home bees, doctor. *Of course*, your apple-trees are not to be compared with those in the grand old State of Ohio.—ED.]

"THERE WILL BE a slight change in the construction of the cover" for 1900 says an editorial, p. 806. I wish there might be a big change, giving us a cover with a dead-air space and a tin top. [We have sold for years a double cover; and where such cover is preferred the purchaser can have his preference gratified; but a double cover with tin, while it might be absolutely proof against leaking, would be very expensive. The present price of tin plate would almost rule it out for hive-covers.—ED.]

LOTS OF THINGS seem to be coming to light about queen-rearing lately, and I suspect there are lots of things we don't know about it yet—at least that *I* don't know. I thought it was the jelly and not the kind of cell that made the bees rear a queen. But I accept the word of friend Gathright, p. 804, that the cells will do without the jelly. Editor Pender is even more emphatic in *Australasian Bee-keeper.* He gave on the same frame cells with and without jelly, and the bees accepted the larger number without jelly. [As I have already stated, I believe it made but little difference whether we used larval food or royal jelly. Assuming that they are the same up to the fourth day, of course it could make no difference; but we have used it in cells when it was older than that.—Ed.]

"THIS WAY of making honey a main part of the meal, and not a mere relish, a tickler, and spur for the sated appetite, is a very important point" (Anton Leister, 794). I read that to my wife, and she said, "I should think it would sicken them." I said, "He doesn't mean to fill up mainly on honey, but to eat it during the main part of the meal." "But it ought to come at the last part of the meal as a sort of dessert. At least I've been always used to thinking of it in that way," said she. This in spite of the fact that her mother, a blessed old Scotch saint who has been for some time a member of my family, takes it during the main part of every meal as regularly as she takes her "parritch" every morning. It takes a lot of hammering to get out of people's heads the idea that honey is not a food but a fancy dainty. [A good many dainties and foods, harmless and generally easily assimilated, taken together *after* a full meal, when the appetite is fully satisfied, will do a great deal more harm than good, and consequently get a reputation of not being healthful. I can sit down and eat some kinds of puddings without distress if I make that the main part of the meal; but let me put that pudding on top of a full meal of roast beef, bread and butter and potato, and I feel decidedly full and dull afterward. Honey is generally eaten as a relish after a full meal, when it *should* be used about like butter, along with bread or whatever it is eaten with. Mr. Leister has the right idea.—Ed.]

AN OBJECTION to the whole scheme of having any kind of color-samples is that "the colors of the various honeys vary according to the different localities," says ye editor, p. 802. Exactly and precisely on that account, my dear friend, we need something for a standard. If a man tells me burdock honey is just the same shade as this or that honey, I don't know what he means for I don't know the shades of honey in his locality. But if he says it just matches the shade of card No. 6, then I understand it, for the card is the same in Maine as in Mexico. [Agreed! Now *if* we can get the transparent color-cards properly numbered, well and good; but I do not know where to write to get such cards, and much less how to make them. They should be made of celluloid or gelatin. But, look here, doctor. A certain tint $\frac{1}{32}$ inch thick will be much darker when made 2 inches, as, for example, looking through a bottle of honey. Now, then, if I had a color-card that to my notion represented white clover in this vicinity, and should send it to my friend Coggshall, in the heart of the buckwheat country, and ask him if he had any white clover of the color of my color-card sent, how would he judge the tint—by what he could see in little vials or by what he could see in a Muth or Mason jar much larger? After all, I suspect that the surest and most reliable method of apprising the purchaser of the color of the honey is to send him a bottle of the honey itself. The prospective purchaser makes an offer; the offer is accepted; the honey is received; and if another sample in the *same kind* of a vial is equal to the sample sent in the first place, then the seller gets the price offered.—Ed.]

STENOG says (p. 791) that some time ago he read in a foreign journal that Dzierzon was revising his own theory, and that he might some time abandon it. I think that foreign journal must have been twisting facts. I've watched the matter pretty closely, and I've never seen a word from him receding in the slightest degree. On the contrary he has expressed himself in the strongest terms against any change of view. B. Hamlyn-Harris was present at the late big German convention, and says in *British Bee Journal:*

> On the second day Dr. Dzierzon again lectured; this time on "The Groundlessness and 'Insecurity' of the New Theory." In his opening remarks the venerable lecturer made mention of having, during his lifetime, written no less than 300 articles to the German *Bee Journal*, now edited by Mr. Dickel, and spoke of his feelings suffering somewhat keenly at the idea of the theory of parthenogenesis in bees lasting for only a lifetime, and that on the eve of his departure all the errors so long since abandoned should now be dug up again.

Does that look like abandoning the Dzierzon theory? [In a private note referring to this same matter, Dr. Miller sends the following, which, as a matter of general interest, I have taken the liberty of appending right here as another Straw:—Ed.]

Page upon page has been wasted upon the Dickel theory in the German journals, and it will be time enough to let it get into GLEANINGS when the leading Germans have accepted it. I think the majority of them look upon it as the wildest nonsense, some keeping quiet for fear there may be something in it, a few swallowing it entire. I suspect there's just as much truth in it as there was in the Kirby theory which occupied some space in the *American Bee Journal* in 1861, holding that workers rode on the drones' backs, gathering the semen there while the drones were on the wing, and bringing the semen to the hive.

SOME SWEET DAY.

BY EUGENE SECOR.

Though clouds obscure the stars to-night,
  The shadows shall not long remain;
  Though life be not unmixed with pain,
The star of Hope is ever bright.

The dead, cold earth in winter time
  Forbodes no harvest and no flowers;
  But Hope, remembering vernal showers,
Hears, far away, the bluebirds' chime.

Ill fortune may reverse thy plan,
  And tardy Justice long delay;
  But Hope expects that, some sweet day,
Shall see removed the fateful ban.

O blissful dreams of hope and youth!
  Your fancies weave a web of gold;
  The heart that *hopes* shall ne'er grow old,
And *some sweet day* is thine in truth.

PICKINGS FROM OUR NEIGHBORS' FIELDS.

BY STENOG.

Say the bees, "Shut the door! that horrible roar
Of storm-winds now rises and frightens us more;
How pleasant these combs to make glad our homes!—
An antidote, surely, for pains that we bore."

AMERICAN BEE JOURNAL.

C. P. Dadant sums up the wintering question in a few words: "Good healthy food, an even temperature, quietness, and a fair amount of ventilation."

* * *

On the first page of the issue for Oct. 26 is a picture of an apiary located in the great city of Chicago. It is owned by Mr. W. H. Horstmann, a letter-carrier. He now has 15 strong colonies. The picture shows several little cottages close enough together to touch elbows; and instead of the earth swallowing up the city, the city has swallowed up the ground. Why do human beings like to huddle together in cities, like bees in a hive, especially when there are so many railroads to leave town on? But Chicago is not all brick; and the thousands of flower-beds within its limits may furnish more bee forage than any county in Illinois outside of Cook.

BEE-KEEPERS' REVIEW.

The October issue is fully up to any thing Mr. Hutchinson has ever printed. Two fine views of the apiary of O. J. Hetherington, of Michigan, form the distinctive feature. By the way, a correspondent tells Mr. Hutchinson if he would stay at home and not gad all over the country his *Review* would appear more regularly. But Mr. H. defends his gadding propensity by asking if his journal would have the same freshness and vim if he were to shut himself up at home and see nothing of the world. It is to be hoped that Mr. H. will continue to "gad" so long as he gives us the benefit. The regularity of a daily paper is not at all necessary for a monthly journal. If the *Review* appears twelve times a year, that fills the bill. The pictures referred to show the clamps in which Mr. Hetherington keeps his hives, presenting quite a novelty in this respect. The editor says this is the only apiary he ever saw in which the hives are kept in clamps the year round.

* * *

In speaking of queen-traps, Mr. W. E. Flower, the magic-lantern man at the Philadelphia convention, says he has used the Alley trap for ten years, and has never lost a swarm nor a queen, and these traps are good for ten years more. He adds: "What a pleasure to know that, when you come home, even if the bees *have* swarmed, you will find the queen in the trap, and know to a certainty just where she belongs!"

* * *

Mr. Herbert Clute, of Wisconsin, says bee-hunters in his locality attract bees by burning bits of wax on birch bark. The odor is very attractive to the bees, and by means of it they are soon led to betray their location. Hunters there use bee-hunting glasses with colored lenses that so change the color of the timber and sky as to give a better background for watching the bees.

CANADIAN BEE JOURNAL.

The difficulty of having the outside frames, either comb or extracting, as well filled as those in the center of the super, has been overcome by Mr. Pettit "by allowing the entrance to extend clear across the hive, and by raising the front 1¼ inches above the bottom or floor, by a wedge on either side of the entrance. This allows the bees to enter the hive the full width, and compels them to walk up the sides or back of the hive, so that they always fill the outside frames first instead of last, as is the case with the narrow entrance." Mr. Pettit's system in detail is given in an article credited to the *Farmer's Advocate*. Mr. P. is about to move from Belmont to Aylmer, Ont. His son Morley will remain on the farm and manage the apiary. An article from the latter appears in next issue. For years the elder Pettit has been one of the most successful bee-keepers in America, and it is to be hoped he will not be entirely lost to view in his new home.

BRITISH BEE JOURNAL.

Mr. L. Quayle, on the Isle of Man, near the English coast, reports one colony this year that has broken his previous record of 334 lbs. of comb honey. This was "heather" honey, which cuts so large a figure in English and Scotch apiculture. His season has been very good. That is a remarkable yield for any source, to say nothing of a place situated six degrees, or about 400 miles, north of the northern boundary of the United States.

* * *

A correspondent says his journal would be more valuable to him if it had directions what to do every week or month in the year. The editor says this is out of the question, as the circulation of the *B. B. J.* is from the extreme north of Scotland to the southern end of England. Each must make his own record according to his seasons; for what would fit one man would not another.

THE AUSTRALASIAN BEE-KEEPER.

Mr. G. Kelly, of Dungog, took 700 60-lb. tins of honey from 70 colonies—an average of 600 lbs. per colony. The editor says this is almost incredible, but he says he knows personally enough of the locality and of the way ironbark secretes honey to warrant him in saying that even a greater return is possible. I do not remember any other instance that would even approach this wonderful yield. What a field for Coggshall to try his hand at extracting honey!

* * *

Mr. J. Hopkins claims the following advantages in raising extracted honey instead of comb: 1. Much larger proportions can be harvested with less labor and expense; 2. Better prices in proportion to those obtained for comb honey; 3. Not so liable to deteriorate; 4. Can be handled better, and shipped to foreign markets without risk of damage; 5. Less expense for market packages; 6. The market is not so easily glutted with extracted honey.

* * *

To keep sections of honey nice and clean, Binni adopted the following plan: He purchased at the printer's some common white news paper. He had it cut into pieces 12½ × 8 inches. In these papers he had his sections wrapped. As fast as one assistant took a section out of the super and scraped the propolis off it carefully, another would wrap it in one of those papers and place it in a box made to hold a certain number *exactly*. He had these cases made to hold 1 dozen, 2 dozen, 6 dozen, and a gross. When the lids were *screwed* down the sections were safe, he thought, till doomsday.

GENERAL CORRESPONDENCE

FOUL AND OTHER FORMS OF DISEASED BROOD IN THE STATE OF NEW YORK.

BY N. D. WEST.

Mr. Root:—I believe you are taking the right view of the matter pertaining to our diseased brood which has caused us so much trouble. We have, I think, more than one kind of disease on the ground, and yet there seems to be a tracing from what I have called pickled brood, all the way along from bad to worse, and in different stages, until at last it so closely resembles foul brood that it is difficult to draw the line between this and the genuine foul brood, although some of the dead brood will be found, at times, to be flattened down into the cell, and will be about the color of white glue, and will, when a toothpick is placed in it, draw out from its cell from ½ to ¾ of an inch. But you have to hold the toothpick with an object in view, and try to get it to string out or it will not follow the toothpick at all. Some of this becomes coffee-colored, and is rotten in the cell, and will string out some, but it will not break and spring back like rubber; neither do the combs, when held close to the nose, give off that offensive and sickening odor that I get from what I call the old-time foul brood. The hive, when opened, or a comb held close to one's nose, will give a kind of sour smell, or odor; but one of these coffee-colored, rotten brood, when removed from the cell and held close to the nose, will have a sort of rotten smell *only*. But take a hive full of brood, three-fourths of it good brood and one-fourth of it bad brood, as described above, and place it on top of a pretty good swarm to hatch; place a queen-excluding zinc between the hives, and keep the queen below, and in due time the brood above the excluder will all be hatched out, and all of the bad brood will be cleaned out of the combs, and no more trace of the bad brood is seen in these hives that season. This has been my own experience in my own apiaries this season, and these colonies in the lower hives were slightly affected, as well as the brood placed on top of the colonies.

Take notice that these colonies are all made very strong, and now have a good lot of young bees as well as old ones; and remember that the hatching of so many of these young bees seems to encourage and give more energy to the bees. They go right to work and clean house. I remember that, after this, we had some honey in the field, and somehow these colonies have kept their combs clear from diseased brood, and were the first ones to clean up of themselves.

Again, I have noticed that, in apiaries where large hives are used, and plenty of honey was in the hives at all times, the bees suffer less than those in smaller hives, and which are rather short of honey.

Again, not until about the middle of our fruit-bloom did the bees show so very much of the diseased brood; and at this time, and after this up to the time that the red raspberry was ripe, it seemed as if whole apiaries in some places were struck with this disease almost like a potato-blight, and yet I could generally trace some reason why it might occur by being carried by bees in robbing colonies, and in mixing up in the same yard, etc. All yards were not affected alike, while some were slightly or badly affected in each hive in the yard. In other yards, only a few swarms would be affected, all sitting in one row, or at one end or corner of the yard only. So far as I have observed, where I have reason to believe apiaries have not been affected until the past season, they did not show very much dead, rotten, coffee-colored brood until the first of July, and more of it later in the same month.

In half of the cases where bees have been shaken by the McEvoy plan, which seems to be the most reliable method I know of, the disease has started up again; but where the colonies have been strong, and the work done when there was a fresh supply of honey coming in from the field, the results have been very good. Colonies that have passed a certain medium in the early season, and nothing done to help them, went from bad to worse; but I did notice that, when we had a three-days' basswood flow of honey, although but very little was gathered, the bees commenced to clean the dead brood from their combs, and I believe that this new honey is what helped the bees to hatch more good brood again. But after this there appeared to be a scarcity of honey in the field again, and diseased brood again became more prevalent.

But, again, when buckwheat began to blossom, the bees again commenced to clean up their combs, and the stronger colonies gave more good brood again; and from that time until now there is but very little if any of the diseased brood that can be found only in weak colonies good for nothing. The diseased brood has been cleaned out by the bees; in general, some have dried down, and I presume they are covered with honey. It seems that, when brood grows scarce, or a colony becomes queenless, all strong colonies will get the dead brood out of sight. I do have some fears that this malady may clean us all out of bees ; but I have faith, and hope that, if we reach a good honey season, this dreaded disease may practically disappear.

However, I do not wish to be understood that all bees have been cured, or cured themselves, for many have destroyed their bees by the hundred swarms this fall. But where more favorable conditions have prevailed it has been otherwise. I have never been in the habit of feeding bees very much ; but I am not sure but it will pay to feed, in time of a honey-dearth, those colonies that are affected. The use of drugs may help—I don't know. I have seen some good results where drugs have been used ; but the bees were fed sugar syrup at the right time, in my opinion.

I am the bee-keepers' servant, doing the best I know to help them. I am trying to inform myself, and hope to be able to know much more about how to handle diseased brood, etc., than I do now. I invite my brother bee-keepers to write their experiences along the line of bee-diseases, and especially diseased brood, such as foul brood, pickled brood, and something about half way between—or is it all one? What do you think about the trinity? Thus far in my work I have been careful to burn only such colonies as have been really bad, or those on a clean territory, or very nearly so. I find that some have sold bees from a foul-brood locality in the early spring, to parties on what I call clean territory. It should be clearly understood that the law forbids the sale of bees from foul-broody apiaries. Be careful.

This has been the poorest honey season I ever knew, especially so in buckwheat localities.

N. D. West,
Bee Inspector.

Middleburgh, N. Y., Oct. 23.

[See editorials.—Ed.]

MRS. SWEETHEART.

A $200 Queen found at Last. Her Bees Gentle, and Good Workers; a Valuable Article.

BY A. J. WRIGHT.

Doctor Miller rightly says, p. 603, "You're on the right track in offering a premium for good working stock." It is the queen that gets the honey, and no mistake. Now, I am not rearing queens for sale, but I have one queen that nothing short of $200 in clean cash would buy; and if I *knew* that I should never have another as good, I should hesitate to part with her at that price. Why? Well, I don't mind telling you. Last season, which was the poorest but one that I ever knew, and that one the present, this queen gave me 167 pounds of beautiful marketable honey in sections, while my other colonies were doing all the way from 20 to 50 pounds. This season at this date (Aug. 19) this queen (or, more properly, her bees) has filled and capped four crates of 24 pounds each, and has gone into the fifth one, which I have just given them with a double hustle, and which I think they will fill. My other colonies are doing from nothing to 50 pounds. The bees from this queen pay but little attention to buckwheat, but at this time are getting their supplies from the second crop of red clover. The honey is capped very white.

I handle the bees from this queen at any time and under any circumstances, rain or shine, full honey-flow or none, without gloves, smoke, or veil, removing the cover with a snapping of propolis, taking off or putting on sections, diving into the frames, etc., and I have never yet been stung by them ; but, on the contrary, they appear pleased to see me, making a buzzing sound of contentment when the hive is opened.

This queen is very prolific, and the bees winter substantially without loss. Last season this queen threw off a swarm in May—I can't tell the date. This season a swarm was thrown off May 15. No disposition is shown to throw off a second swarm. The bees from this queen are uniformly marked with three distinct bands of light amber, and are of large size.

This is the second season that I have had this queen, and I am requeening my apiary with her daughters as rapidly as possible.

"Sweetheart," the name of this queen, is just my ideal of what a queen should be. In my bee-keeping experience of nearly twenty years I have never known her equal.

PREVENTING AFTER-SWARMS.

On p. 397 several methods are given—all of them probably good. The following plan is the one I use, and always with good results :

My parent colonies all have clipped queens. When a swarm issues I place the new hive on the old stand, and hive the swarm and old queen, removing the old hive to a new location. It is from this old hive, of course, that after-swarms may be expected to issue. About the time the cells are to hatch I place an entrance-guard of perforated zinc on, and leave it a few days, when several dead queens will be found at the entrance. I now remove the zinc, and have the best queen of the lot on the plan of the survival of the fittest.

MAKING INCREASE.

On pages 140, 226, and elsewhere, methods are given for making increase. These methods all make increase at the expense of honey-production. Suppose the bee-keeper has several strong colonies in movable-frame hives, which in a good season should give a surplus worth five to ten dollars each ; should he attempt to increase by the method given, he would get no surplus, thus making the methods too expensive.

The following plan will not disturb your original colonies, and will also utilize the box-hive man :

In the early spring, say in March, in this latitude, purchase of the box-hive man or farmer bee-keeper a strong colony in a box hive for one dollar. Transfer this by the Heddon short method in April, as soon as dandelion bloom is on, into your movable-frame hive, driving out about two-thirds of the bees. Place an entrance-guard over the entrance of the new hive; catch the queen; clip her wings, and return her to the old hive. Set the new hive in place of the old one, giving some larvæ of proper age for queen-rearing. Repeat the operation, except clipping, every four weeks, into the months of September or October, if the weather is warm. The colonies transferred in April, May, and June will give you some surplus in July and August ; in a good season will keep themselves; September also, in some localities; October will need help.

A STRAY STRAW.

Dr. Miller says, p. 601, that I am "away off" when I attribute the dark color to the habits of us bee-keepers. The doctor puts the following questions : "Isn't every thing just as black in a nest in a bee-tree where no bee-keeper has interfered? If you should clean the bottom-board every day would you prevent the darkening of the brood-combs?"

I give it up, doctor. I've never tried cleaning the bottom-board of a bee-tree. The article, p. 574, had reference to the cappings of section honey—not brood-combs. The latter owe their dark color mainly to other causes—I think such as cocoons, excrement, dead bees, etc. The dirt and litter of the bottom-board I believe to be mainly responsible for the discoloration of the cappings of section honey.

HOW TO START BEES IN SECTIONS.

The Barber method, p. 309, and referred to elsewhere in GLEANINGS, is all right for those who are working for both comb and extracted honey; but as some may not wish to go into the extracting business I give a method which succeeds well with me.

When you are ready for section work, cage the queen, giving enough "Good" candy to last two or three days. Put on your super of sections with bait, if convenient. On top of this super place an empty one, in which put the caged queen. The bees will begin work in the sections *at once*, and will keep at it as long as there is nectar coming in. The empty super and cage should, of course, be removed as soon as the queen is liberated.

Bradford, N. Y.

[Your queen will well be worth $200 providing she was either pure Italian or pure Carniolan or something. If she is a cross between Italian and black, her daughters will be likely to sport to either one or the other ancestors. Take my advice, and do not subject her to the arduous duties devolving on the mother of a large and populous colony. Prolong her life by restricting her egg-laying, and convert as many of her eggs as possible into queens, and then sell them for five or ten dollars—the best of them. If you can get any daughters that come anywhere near duplicating their mother, reserve them out and let The A. I. Root Co. make a bid on them. It is just such queens as these that we want. Be sure that her colony winters well, and if she comes through we should like to know what offer will tempt you to part with her next spring. You have given our readers a number of valuable hints, and I hope they will give your whole article a careful reading. —ED.]

BEST HIVE FOR EXTRACTING.

Ten-frame L. Hive for California and the Ten-frame Draper Barn for Illinois ; Why Locality should Decide the Size of Hive.

BY HON. J. M. HAMBAUGH.

I am not sure but the ground relative to the most desirable hive for extracting has been pretty well thrashed over; but with your consent I desire to answer some of the paragraphs in Mr. Draper's interesting article on page 610, Aug. 15. I do not for a moment dispute Mr. Draper's experience relative to the combs becoming more or less pollenized, and his confining the queen exclusively to the lower combs will not obviate this difficulty. I will also state that, when combs become thoroughly filled with pollen accumulations, they are unfit to use as brood-combs ; and the best use to make of them is to consign them to the solar wax-extractor.

Mr. Draper says that, when "the honey-yielding plants fail to secrete much nectar during the hot weather, so that the whole force of the colony is turned to bringing in pollen, and as the brood is scattered through the hive, so is the empty room for pollen, and it is not long until every available cell is filled with it." To be sure, Mr. Draper ; and the more the pollen is concentrated in the brood-chamber the sooner you will have the queen hampered for laying room, and the sooner old pollenized brood-combs will have to be replaced with new ones, or frames filled with full sheets of foundation.

I will admit that pollen in the surplus apartment is not desirable, and yet we can tolerate some without any apparent detriment to the quality of the honey. I have been extracting honey for 15 years, and in all my experience I could never see that brood and pollen in the combs, when carefully extracted and strained, made a particle of difference in the grade and quality. Of course, it is in the way of the extracting-knife, and requires caution and some extra work; but the advantages of but one size of frame throughout the yard, it has always seemed to me, offset these difficulties.

Under many conditions the ten-frame Simplicity hive is sufficiently large for a brood-chamber, and her majesty will not seek pastures new. This I believe to be especially true here in California, where we have such long drouths, and no wintering problem to solve. We are also confronted with quite a difference in the cost of the material entering into the two different styles of hives, to say nothing of the extra amount it will take. The broad boards necessary to cut the bodies of the Draper hive will cost from three to six dollars per thousand more than the lumber for the Langstroth. This, of course, is an item to be considered.

I want it distinctly understood that I am not fighting the large-sized hive. Were I in Illinois, and had to start anew, I'd adopt the Dadant-Quinby or one equally commodious. Here and Illinois is another proposition. I am open to conviction when I can see my error, and I may do some experimenting in the line of a new design the coming season, the result of which I shall report, Providence permitting.

In your footnote to Mr. O. O. Poppleton's valuable article, entitled "The Long-Idea Hive," you say, "After all, the proposition simmers itself down to this: 'Can we make more dollars in our locality with a large hive than with a small one?'" That fits the case to a dot, and every one must study the conditions and surroundings; and let me drop a little prophecy right here. The coming hive for extracting purposes will not be any less in cubic dimensions than the ten-frame Langstroth; and where wintering is a factor to be considered, a hive of larger dimensions will be necessary for the average locality.

HOW TO MOVE BEES IN HOT WEATHER.

Moving bees during hot weather, and when the colonies are very populous, is considered out of the question by many of our best bee-keepers; but, as will be attested by many, I successfully moved my bees in Illinois from the high lands to the low lands for several seasons, thus securing a fall flow from Spanish needle and heartsease on the low lands after the clover and basswood harvests were over. The perfect success of this venture was more attributable to the ventilator Mr. Draper mentions than any other one point in their preparation; and I must claim the honor of its invention. It was simply a rim three inches deep, cut exactly as an upper body, to fit directly under the lid. A groove was cut one inch wide clear through on all four sides, within three inches of the corners. This is done by setting the saw wabbling. The groove is, of course, covered on the inside with wire cloth. All heavy combs must be previously extracted, and all combs securely spaced and tacked at the top with strips to prevent their sliding. The Dadant wire spacers always did the work safely at the bottom for me. All my combs were wired horizontally with three strands of wire. I would leave an upper story on, and in the event of an extraordinarily populous colony I would put two ventilators under the lid. All lids and platforms were secured to the bodies of the hives.

The work of preparing the bees for moving was, of course, done during the day; but the loading and moving were performed between two suns and when we had a full moon. We used ordinary farm wagons, with racks made for the purpose, which would accommodate from 16 to 24 at a load, and, of course, we would drive very slowly and cautiously. We have moved as many as 150 colonies without the loss of a quart of bees. As Mr. Draper expresses it, as soon as the bees are jolted a few times they emigrate to the highest point, and there they cluster.

The entrance is secured with wire cloth; and as soon as the body of the bees leaves the combs the excess of animal heat passes out through the ventilators, and the combs become sufficiently cool to prevent breakage.

With care and judgment, bees can be successfully moved any time in the year. I believe the ventilators would make a necessary adjunct in your catalog.

Escondido, Cal.

[When we move bees we use a rim 2 inches deep covered with wire cloth. This is put on in place of the cover. While this is good, experience of a kind that nearly resulted in the smothering of several strong colonies one hot summer night, when we were hauling a load of bees, leads me to believe that your arrangement is far better. I've a notion to try it next summer. At the approach of a honey-flow it is very expensive to let even 25 per cent of the bees smother in moving.—ED.]

RAMBLE 178.

Gold-mining vs. Bee-keeping.

BY RAMBLER.

We passed another apiary having a goodly number of hives, but Mr. Brodbeck and I were so busy in our respective spheres that we did not halt to examine them. That 17 miles up the canyon was a delightful journey to me; but Mr. Brodbeck looked real tired when we reached our camping-place in a cosy nook under the willows with a purling stream on one side and the steep mountain upon the other.

Several miners were camping near, and in the evening we had quite a circle of these men, who live rough and lonely lives, around our campfire. Mining and gold nuggets were the chief topic under discussion; and, though they could talk familiarly about nuggets, they had none to show. Occasionally one of the men would become quite fluent in the use of oaths and otherwise scandalous language. Now, I have always noticed that, when a man begins to interlard his conversation with such words, if the listener laughs or even smiles it will be looked upon as an approval, and the oaths will increase; but on this occasion Mr. Brodbeck and I looked solemnly into the fire, and were pleased to note a diminishing of the objectionable language.

There has been a great amount of gold taken out of this canyon, and the evidences of work in years past are visible upon almost every foot of ground — tunnels into the mountains, in every direction, some of them dug by the Indians under the direction of the Spanish padres early in the century. At present the State will not allow hydraulic mining, and the so-called dry washer is used instead. One of our miners was using one of these machines just above our camp, and I present a photo of the same. Fill the hopper with dirt; turn the crank; the screens are shaken; a bellows underneath blows the dirt off, and the gold, if any, is found upon the riffles on the lower screen. If by chance there are any nuggets they are caught in the nugget-catcher in the upper screen. It is no light work to handle pick and shovel all day; and when the machine is worked it shakes up a lively dust, and the man is soon covered with it. The man in the photo, after a hard day's work, showed us about forty cents' worth as the result of the day's labor. For several days previously he had received less than that.

"Well, Brodbeck," said I, "I believe I prefer bee-keeping to working a gold-mine—too much hard labor and too little pay. My idea of a gold-mine is where we can rattle out at least ten dollars a day; that would give a fellow some encouragement."

GOLD-MINING WITH A DRY WASHER.

"But, Rambler, you do not get ten dollars a day out of your apiary; then you know in a gold-mine a man may happen to strike a vein that will produce millions. There is no such fascinating thing ahead in the bee business."

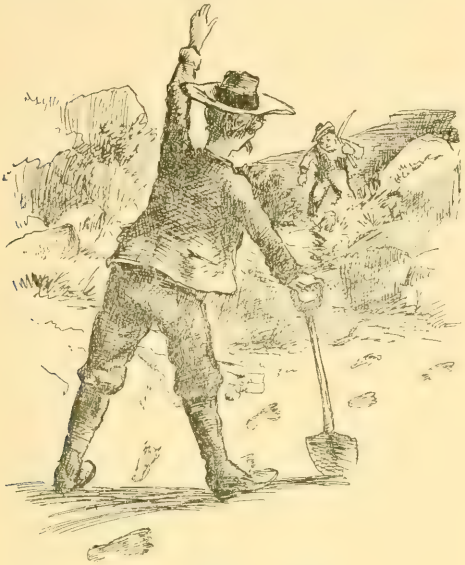
"Yes, gold-mining is very fascinating to some; but when the chances are one in a million of striking a bonanza I will stick to the bees. I am quite sure of a living from the bees if I give them the attention and enterprise I should. Now, here is this miner—been in the business several years; and still, from what he says, he is living from hand to mouth. I have seen many just like him in the mining-camps of this State. With the same amount of work with bees, intelligently directed, he might have been as well off, or even better off, than you or I."

"But, Rambler, look at the bee-keepers of to day in California. How many, aside from you or me, are wealthy? They have been in the business for years, and are still poor; and it is not only so in California, but all over the country. Then we have our dry seasons and failures."

"Well, I am always disposed to take a bright view of the business. Many a man, if he is not getting wealthy, is getting healthy, like you and me; then there are hundreds of men in California who owe their start to success in other lines of business to the bees. Here is Mr. Moffatt, for instance, of our Angel City. He started in the bee business a few years ago, made a few thousand dollars, invested it successfully, married a lady who can sing like a nightingale, and now has given $40,000 to the cause which the evangelist Crittenden promotes, and himself and wife are giving their time and voices to the work. There is not an industry that can show a better result. Still, Mr. Moffatt owns an apiary and not a gold-mine!"

"There are exceptions to all trades, Mr. Rambler, and Mr. Moffatt is one of them; and on the whole the bee business is not considered much of a business. I know, and you know, a gentleman came here from the East not many years ago and fraternized quite heartily with the bee-men; and, though he is still interested in the industry, he is not so much interested in the bee-keepers. The fruit-growers are more in accordance with his tastes, for in their ranks are found lawyers, judges, ministers, doctors, and governors—the talent and wealth of our glorious land—and representing the highest social circles; and doesn't it make you smile to apply social circle to the bee-keepers? But, as you say, it is a healthful employment, and I never enjoy myself better than when out on the ranch."

"I am pleased that we are in accord in at least one point — that of the healthfulness of the business. Much might be said pro and con about the merits of bee-keeping as compared with other industries. Meanwhile the business is developing, and the only way for us to do is to go into it largely and make it pay us at least ten dollars a day. That is not as good as a paying gold-mine, but it is better than one miner in a thousand is doing. Now that you are so very much interested in gold-mining, suppose we meander down the canyon and prospect a little. I'll take the shovel and you take the pick; and, by the way, Brodbeck, have you noticed how liberally this country is sprinkled with honey-dew?"



"COME HERE! QUICK!"

"Yes, I noticed it yesterday, when driving through the dense growth of alders; and, see here! the stones are wet with it, and there are but few bees at work here, which shows that there are but few wild bees here."

"Now, Brodbeck, this is a good chance for us to make an observation as to the origin of this honey-dew. You know there is quite a little controversy in the journals about the matter."

"Well, Rambler, here is a leaf. The upper surface is glossy and sticky with it, and here on the under side are a few of the veritable aphides. They are little fellows, but there are enough to show the origin of the dew. You see they bite the leaf, and the dew exudes."

"That is where I do not see as you do, and it is where you are mistaken. The aphis does not eat the leaf to any extent; and if it does, the exudation comes from the aphis."

"Pshaw, Rambler! just see here; that leaf has been roughened up, and anybody with half an eye can see that's where the dew comes from."

"He can, hey? Well, now, you see here too; anybody with the least gumption can see that it comes from the bug, else why is it called bug-juice?"

"Why, Rambler, a goose would know better than that. A little bug like—hold, there don't you dare kick my dog; and don't you hit me with that shovel."

"Brodbeck, put down your pick; although I ought to swipe you I will desist. I have listened to a voice that came to me from the distant past. When I was a boy I learned from a Sunday-school book to count one hundred before swiping a person. I have counted, and will not swipe; but if you dare say goose to me again I will not be responsible for what will happen. Now, don't you think you had better go down on the other side of the wash while I take this? It will be for our health, probably, to continue our mineral studies."

Of course, the readers of GLEANINGS know that bug-juice all comes from the bug; but there was no use for me to convince my contrary partner.

For some little time we kept to our respecttive sides of the wash; but man is a sociable animal; and if he sees any thing new or novel he desires to talk it over and compare notes with his fellow-man; and it so happened that, when I came into the highway, which was quite sandy in this place, I saw several tracks along the road. "Now," thought I, "here is a chance for me to get even with that fellow."

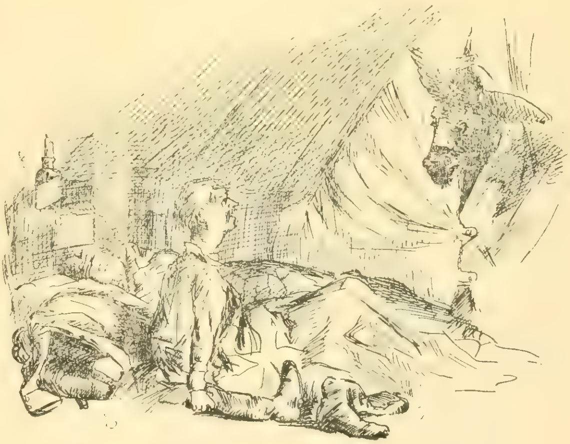
"Hello, Brodbeck! hello! see here! come quick!"

"Hello!" came from the other side of the wash; "what you found?"

"Why, here are fresh bare tracks, and right in the direction of our camp."

"Bear tracks? goodness! didn't think we were in a bear county."

"Well, here they are sure — see? What about the horse?"



"DO YOU TAKE LODGERS?"

"Why, Prince will tear himself"—but when my partner saw the tracks his demeanor instantly changed. "Humph! you're—might have known—here, Juno, s-s- see—."

"Stop, Brodbeck! call off your dog! put down your pick! count a hundred! then you will feel better; but after all, you can see just as well as I can that it is a bare track. I didn't think it necessary to say a barefooted person's track."

Somehow our prospecting did not amount to much that day — not a color to show after all our picking; and the fact is, my faith that we should was as small as a mustard seed. Bro. Brodbeck's faith, which was fairly large at first, gradually diminished. The ground has been worked over and over, and the paying days are passed.

After another visit that evening with the miners we sought our respective tents, and sought the wooings of Morpheus. But what a time we had of it! and, dear reader, you would smile to have seen the sort of Morpheus that came about midnight, seeking for lodgings. The miners in rough country avoid jolting their grub and other traps over the rocky road in wagons by packing them in on donkeys; and half a dozen of these animals thrust their big heads and larger ears into our camp; and, though the donkey is not a very lively animal, they can make a great stir when looking for lodgings or for eatables. Not relishing their company we chased them out of camp Bro. Brodbeck was a little timid on the chase, fearing he might catch a nightmare. Not enjoying first-rate health there was some danger of it; but I am never troubled with such superstitions, and the donkeys had to go.

LARVÆ FOR QUEEN-REARING.

For what Age do the Bees Show a Preference? Valuable Testimony from the Bees on a Mooted Question; an Interesting Series of Experiments.

BY DR. C. C. MILLER.

On page 725 of Gleanings for 1898 I expressed the belief that the common notion that, when a queen was suddenly removed from a colony, the bees were in such haste to rear a successor that they would select larvæ too old, was a mistaken notion. Earnest protests came from those whose opinions were entitled to respect, and some views were attributed to me that I did not hold. On page 427 of Gleanings for this year I defined my position more explicitly, and on page 494 said: "Please watch what bees do when the queen is taken away, and see if they make the mistake of choosing larvæ more than three days old, for queen-rearing." I made the same request publicly and privately elsewhere. I don't know that any one paid any attention to it, and I don't know that I blame such; for, so far as I know, I stood alone in opposing a view in which all the rest were agreed.

Upon one point in dispute, however, I did not stand entirely alone. I said queenless bees start queen-cells when first made queenless, and continue to start queen-cells for several days. Mr. Hutchinson said his bees started all their cells at nearly the same time, and so nearly of an age that the young queens emerged not more than two days apart. Henry Alley said his experience agreed with mine upon this point.

Having asked others to make fresh observations, it was only fair that I should do so myself. It might be I had not been careful enough in previous observations. So I took the matter in dispute to the bees, and took careful notes of their testimony. The important thing was to know somewhat positively the age of the eggs or larvæ used, and the time at which the queen-cells were started.

To No. 84 I gave successively frames of empty comb, noting the time at which a comb was given as well as the time it was taken away. I was not as successful as I should have liked in getting the queen to lay promptly in the combs given. In one case no eggs were laid in the prescribed comb after 24 hours' waiting. The probability is, that in all cases the eggs were laid in the last rather than the first part of the time in which the queen had the comb. That is, if I gave the comb on one day at noon and took it away the next day at noon, very likely most or all the eggs were laid during the latter half of the 24 hours. The crowd of other work upon me will account for the irregular hours at which the work was done.

Allow me to name the different combs by the first five letters of the alphabet. They were given to and taken from No. 84 as follows:

Comb *a*, given June 28, 10 A. M.; taken June 29, 12 M.

Comb *b*, given June 29, 12 M.; taken June 30, 2 P. M.

Comb *c*, given July 1, 4 P. M.; taken July 3, 10 A. M.

Comb *d*, given July 3, 10 A. M.; taken July 4, 10 A. M.

Comb *e*, given July 3, 10 A. M.; taken July 5, 10 A. M.

Each of these combs, when it was taken from No. 84, was put in an upper story of No. 54 over an excluder. No. 54 was a tolerably strong colony with a laying queen. The combs were merely put in this upper story for safe keeping, the bees taking good care of the eggs and larvæ.

July 5, at 4 P. M., I took from No. 54 its queen and all its combs of brood except the five combs for experiment.

July 6, at 10.30 A. M., I examined to see if any progress had been made. The colony had now been queenless 18 hours 30 minutes, and I found queen-cells started, but not entirely where I expected.

Comb *a* had no queen-cell, neither were any started on it later. Counting that the egg hatches 3 days after it is laid, the youngest larva in comb *a* must have been at this time about 3 days 22½ hours old, or 22½ hours too old for a good queen, if the scientists are right in telling us that the worker larvæ are weaned at 3 days old.

Comb *b* had two queen-cells started on it. The oldest larva in this comb must have been not more than 3 days 22½ hours old, and the youngest not less than 2 days 20½ hours old.

Comb *c* had 8 queen-cells. Two of them had hoods built over them, the rest only showed the cells enlarged and an extra amount of pap. No larva in this comb could have been more than one day 18½ hours old. The youngest were probably not more than 24½ hours old.

On the other combs I found no queen-cells.

I very much regret that nothing more precise can be said about the cells on comb *b*. I can not prove positively that the two cells started on it may not have contained larvæ 3 days 22½ hours old. To make this possible, however, the queen must have commenced laying in this comb the minute it was put in hive 84, while the probability is that she did not begin laying there for some hours afterward. Moreover, the cells were started at least some little time *before* the observation was made, so something must be deducted from their age at starting, on that score. Besides, the fact that four times as many cells were started on comb *c* as on comb *b*, the larvæ in *c* being less than two days old, hardly looks as if they would *prefer* the oldest larvæ in *b* while at the same time they preferred any thing so much younger as the larvæ in *c*. But I must leave others to form their own judgment.

If the bees had asked my advice in the matter they probably would have done somewhat differently. I should have said to them, "So long as a larva is only three days old, it's all right for a queen; and as you're in a hurry for another queen you'd better start all your cells on comb *b*." But they didn't ask my advice.

July 7, 4 P. M. Three more queen-cells on comb *b*. These were started from larvæ 2 days 20½ hours old or older. No cells were started on comb *b* at any later time.

Comb *c* has 16 cells, two of them being emptied of their contents. No larva in this comb could have been more than three days old at the time of this observation.

No queen-cells on combs *d* and *e*.

July 8, 4 P. M. Comb *c* has another cell, making 15 on it (not counting the two that were emptied).

Comb *b* has its first cell, started over a larva that was less than 2 days 6 hours old.

July 10, 11.30 A. M. No additional cells on comb *c*.

Comb *d* has 3 additional cells, these having been started over larvæ less than 4 days 1½ hours old, and they might have been not more than 30 hours old.

July 11, 8 A. M. Comb *c* has 17 cells. If there is no mistake in previous observations, the two additional cells on this comb must have been built over larvæ at least 4 days 1½ hours old. That would surely be taking too old larvæ when younger were present. There is a bare possibility that these two cells were overlooked before, and were now more easily seen when sealed. But I give it just as I find it in the notes taken more than two months ago.

Comb *d* has 6 cells, the last two started over larvæ less than 4 days 22 hours old, and possibly not more than 3 days 1½ hours old.

July 12, 9 A. M. Comb *d* has 8 cells, the last two started over larvæ less than 5 days 23 hours old, and possibly not more than 3 days 22 hours old.

Comb *e* has 3 cells, the first it has had. These cells were started over larvæ less than 4 days 23 hours old, and possibly not more than 2 days 22 hours old.

July 13, 6 A. M. No additional cells on any but comb *e*, which has now 6 cells, the last three being started over larvæ less than 5 days 20 hours old, and possibly not more than 3 days 23 hours old.

This closes the testimony of the bees, no cells being started later. In some respects it is not exactly what I desired and intended the bees should give, but they are to blame for that and not I. I know very well that this is only a single case, and that the next case might be different, for "bees never do any thing invariably;" but let us see what conclusions may be reached from the testimony given.

In the first place, it certainly is *not* proven by the testimony given that bees made queenless are in such haste to rear a queen that they at once select larvæ too old for the purpose. Moreover, I have had the matter in mind throughout the season, and in every case the cells first started were over larvæ that were very small. If any one has accepted the challenge thrown out by me to prove that bees at once selected too old larvæ, I hope he will report at once.

It is certainly very clear that in this case, at least, the bees did not start all their cells within about 48 hours' time, as Bro. Hutchinson says his do. The first cells were started *before* July 6, 10.30 A. M. The last cells were started *after* July 12, 9 A. M. From that it is easily seen that the time from the first to the last cells started was 6 days lacking 1½ hours. It was that much at least, and it may have been more. Henry Alley's experience agrees in this.

While the bees at first select larvæ sufficiently young for good queens, they afterward use some that are too old, continuing to start cells when larvæ of proper age are no longer present. Editor Hutchinson says his bees build cells that he calls fool-cells, because they are so insignificant and poor, and he does not know how to account for them. If he will observe with sufficient care, I think he will find that they are nothing more nor less than cells started over too old larvæ, probably after larvæ of proper age were no longer present.

I must not evade the observation that, something more than 5½ days after the removal of the queen, the bees started cells over too old larvæ when younger larvæ were present. I might say that sometimes bees hold eggs without hatching for more than three days (Dzierzon says two weeks), but I will not press that.

Until some one brings forward some proof to the contrary, I feel safe in saying that when bees are made queenless they are *not* in such haste to rear a new queen that they select too old larvæ, and that there is no error in selection during the first five days of queenlessness. If the combs with the cells be taken within the first five days and put in the upper story of a colony having a laying queen, there will be no too old larvæ in the case. If left with the queenless bees till larvæ of proper age are no longer present, they will build cells over too old larvæ — what Bro. Hutchinson calls "fool-cells."

Marengo, Ill., Sept. 29.

[This discussion started originally from my saying, or from some one else saying, that Doolittle-reared queens were to be preferred, because, if the bees were left to themselves, they would take larvæ too old ; and hence queens reared by nature's method would not average as well as those reared by the Doolittle plan. While I still believe the statement is correct, yet the main prop to support it has been knocked out.

I am always open to conviction ; and when any one produces evidence of this kind right from the hive I can not see it is any weakness or lowering of dignity to acknowledge my error. It appears, then, that, if bees have a choice between old and young larvæ, they will select, not those which are three days old, as is generally supposed, but those which are just hatched out, or somewhere about 24 hours old. By the Doolittle method it has been our custom generally to select just-hatched larvæ; and in so doing we have been in exact accord with nature; for the bees seem to say, if their preference is any gauge, that the one-day limit is the best.

I have read over the experiments very carefully, and if the doctor conducted them exactly as he says (and we have no reason for doubting his statement), then he has a pretty strong clincher on his opponents. Until I received this communication I was inclined to believe he was worsted in the argument ; but, thanks to his persistency (a quality that seems to be very marked in his make-up), he has not only proved himself right, but has given queen-breeders a valuable pointer as to the proper age of larvæ to be preferred for queen-rearing.

But I said that I still believe that the bees left to themselves would not rear for the queen-breeder as good queens as when reared by the Doolittle method. By the latter a decided preference is given by Doolittle and his followers for the rearing of cells under the swarming or supersedure impulse. Under such circumstances the cells are more lavishly supplied with the royal food than queens reared from the cells made by the bees.

Referring to Mr. Hutchinson's statement that bees build most of their cells within 48 hours' time, my experience says there is a great difference in bees. Holy Lands and Syrians will start 25 to 30 cells within a few hours; and after once being started they seem disinclined to start other cells on succeeding days. Black bees will do most of their cell-starting within 48 hours, and Italians and hybrids, especially the former, will extend the period almost up to the limit of available larvæ that can be *possibly* used for the rearing of queens.

There will be very marked exceptions to the statement above; but when I was doing all the queen-rearing myself I was impressed over and over with the general truth of it.—ED.]

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE.

DR. C. C. MILLER ANSWERED.

On page 710 I see that Dr. Miller is not satisfied with my answer to his yellow-band question, as I gave it on page 648 of GLEANINGS for Sept. 15. In his footnote, p. 710, the editor says, "Perhaps he (Doolittle) will be magnanimous enough to drop the matter where it is." This was what I intended to do ; but on p. 745 the doctor still insists that I answer, so I will try to do so as briefly as possible.

The doctor accuses me, p. 710, of entirely leaving the original subject. Just say to him that he did that thing himself. The original question was the purity and color of worker bees from *imported queens*—those imported from Italy, not Italians. But I *did* answer the original question, and the good doctor or any one else can find that answer on page 684, second column, beginning with the seventh line from the top, in these words : "And so it went on, I always standing out against a purity which could not be told without such a minute scrutiny, and a *color* that could not be told as yellow, only as a full sac of honey and the golden sunshine from beyond the window must turn the *maroon* into gold." I have put two of the words in this quotation in italics so that Dr. M. need not overlook them in reading this time, as he evidently did in his former readings. I think this should satisfy him without his giving me a "walloping" if he ever catches me "out alone." I wish *all* might be satisfied with a good working bee, regardless of color; but in looking over my order-book for queens during the past three years I find that three out of every five have specified "*golden bands*" in their order. This and other things tell me that the color "rage" is a "fever" which is not so easily cured as some seem to think.

EXTRACTED AND COMB HONEY AT THE SAME TIME FROM ONE HIVE.

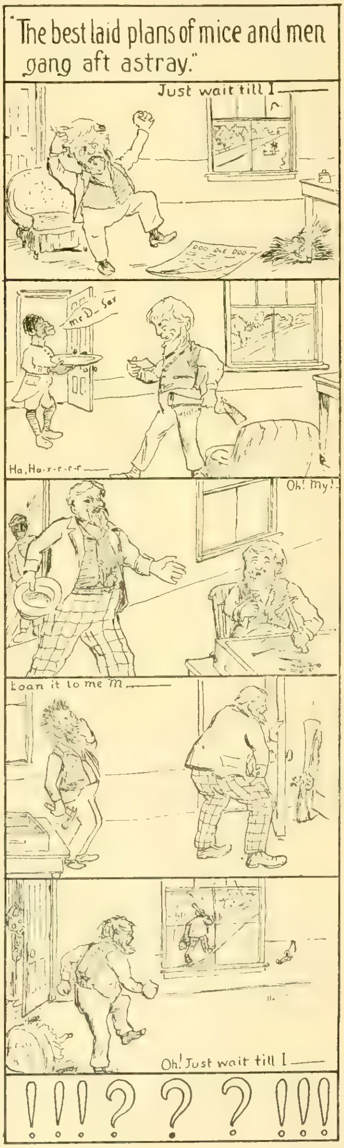
Question.—My bees do not seem to work in the sections as well as it seems they should, and I am thinking of buying an extractor for next season so that I can extract the honey out of the brood-combs when I put on the sections, as I am led to believe that the trouble comes from too much honey in the brood-combs. What would you advise?

Answer.—Well, I would advise every bee-keeper having five or more colonies to procure an extractor, for I can hardly conceive of a fully equipped apiary without an extractor ; but I would not advise buying an extractor for the purpose proposed, for I believe such a fallacy. Many seem to suppose that something must be done in times of section honey to clear the brood-combs of honey to give the queen room to lay, so as to keep up the population of the colony, apparently reasoning thus : "When bees are working in sections, as a necessity, the brood-combs must be crowded with honey;" while the truth is that, when the bees are at work nicely in the sections, with a proper hive, there is scarcely a pound of honey in the brood-combs. I say with a "proper hive," or brood-chamber of a proper size. In this there is a great secret of success. Quinby said, in his "Mysteries of Bee-keeping Explained," that 2000 cubic inches was the right size for the brood-chamber, and told us that there is an advantage in feeding inferior honey in the spring so as to have the space in the brood-chamber, not occupied by the queen, filled with this poor honey, thus necessitating the putting of the nice white-clover honey in the boxes. This is one way of arriving at the same object that we do with a brood-chamber of about three-fourths the size of that recommended by Mr. Quinby. By thus feeding he gave the bees no place to put their honey except in the boxes, thereby losing the use of this inferior honey for half a year, besides having the boxes separated from the brood by some distance of sealed stores for the bees to pass over, which was, of course, a detriment; yet he secured much more honey in his boxes than he would otherwise. My plan to accomplish this object has been to have the hive or brood-chamber of a size that an average queen will keep filled with brood to the exclusion of honey, thus keeping the section boxes close to the brood; and if any feeding is to be done, do it in the fall. This is not all talk, as many of our most advanced apiarists can testify. If any one will try it he will find that the queen will keep the combs in a hive of 1500 cubic inches filled with brood; and if any honey is to be had from the fields, the bees will put it in the sections, as there is nowhere else to store it. This is one of the secrets of securing a good yield of comb honey each year, whenever the flowers secrete nectar.

Now, suppose Quinby had, instead of feeding, extracted the honey from the brood-combs every week or so, as some have thought might be necessary if we would be successful, how much honey would he have obtained in his boxes? Probably not a pound. Bees will not enter the surplus apartment to work so long as there are plenty of empty combs close by the brood to store in. Again, you may take a hive of 1500 cubic inches, and fill it with frames of sealed honey and put on the sections. Next hive a strong swarm with a good prolific queen in it, and in two weeks' time you will have nearly all of said honey in your sections.

Once more, if you allow a first swarm to issue from any hive and keep back all after-swarms, by the time the young queen becomes fertile every available cell in the brood-chamber will be filled with honey, when a good yield is on, and still no start be made in the sections; but just as soon as she commences to lay, the bees will go to work in the sections; and in twenty days, if we examine them, we shall find scarcely a cell of honey in the brood-combs, and as nice a lot of brood as was ever seen.

Now, we will suppose that, just as this queen was fertilized, we had extracted all the honey; we probably should not have obtained a single section of honey unless from fall flowers, as the bees would have gone to storing in the empty cells before the queen had filled many with eggs; and, having plenty of room for the present, in the brood-combs, and not entering the sections when they should, they would have restricted the room of the queen, which would result in no honey in the sections, combs crowded with honey, and a weak colony for winter—at least this has been *my* experience. Therefore, if you want a large yield of section honey, keep prolific queens and let the brood-combs alone, so far as the honey in them is concerned, after the sections are placed on the hive.


"The best laid plans of mice and men gang aft astray."
Just wait till I——
DOO ... DOO
Ha, Ha-r-r-r——
Oh! my!
Loan it to me M——
Oh! Just wait till I——
! ! ! ? ? ? ! ! !

[Our artist, R. V. Murray, of Cleveland, has been watching the discussion between Doolittle and Dr. Miller on the question of the color of queen-bees. Murray, noticing one of Dr. M.'s Straws in which the doctor said of Doolittle, "Wait till I catch him out after dark," sees in his mind's eye the whole performance. It appears from the first act that Doolittle is to make the doctor a visit. The doctor, on receiving this information, well—the artist tells the rest of the story himself.—Ed.]

HEADS OF GRAIN FROM DIFFERENT FIELDS

POLLEN; HOW GATHERED.

While preparing a lecture on the honey-bee a short time ago I turned up your article in the A B C book on "pollen," and it occurred to me that the article might be somewhat improved by ascribing to the moisture oozing from the abdomen of the bee credit for the part it plays in preparing some kinds of pollen and especially substitutes for pollen, to adhere to the pollen-baskets. One might infer from your article (top of second column, page 214, 62d thousand), that the pollen is moistened only by the moisture applied with the tongue; but after close observation I am convinced that the moisture procured and applied to the pollen as the bee passes its legs over and under its abdomen plays a more important part than it gets credit for.

(Rev.) H. A. Dickson.

Ste. Anastasie Sta., P. Q.

[You may be right. The movement of the bee's legs, as it wipes the pollen into its basket, is so deft—so sleight-of-hand like—that it is very difficult to follow just what is done. Perhaps some of our readers may be able to throw some light on the matter.—Ed.]

IDEAL SECTIONS; 4¼×5×1⅜ PREFERRED.

I used a number of your Ideal supers with tall plain sections this summer. The fence separators please me, though I think there is more value in the cleats than in the free communication given by the slats of the fences.

I shall not use the 3⅝x5 sections next year, as they run much too light, especially in a poor honey-flow. I expect to use a section 4¼x5x1⅜, which, when placed beside a square section, is at no disadvantage because of its narrow width, as is the 3⅝x5 section.

The super springs are the best things that I ever used to hold the sections tightly together. The tin supports on which the slats rest are much too thin. They sag, leaving too small a space between brood-frames and super-slats.

Your sections 3⅝x5x1½ are made too thin. The wood should be ⅛ inch thick, then the sections will always come square against the end-cleats of the fences. I was much troubled with them, as they often slipped inside the end-cleats of the fence. I can not understand why some people report larger crops of honey by using tall plain sections and fences. My experience this summer convinces me that I can secure just as large crops of honey by the use of the square sections and old-style separators.

I ordered a few pounds of your foundation, 18 feet to the pound, of your Chicago house. It is not torn down by the bees, except at the close of the honey-flow, when it seems to fall down more frequently than does the foundation 15 ft. to the lb., even though fastened by the Daisy fastener.

When making Doolittle cell-cups, stick them to a piece of separator about ½ or ¾ of an inch square, then stick them to the slat. Then when your cells are ripe you can pry off this piece of separator and the queen-cell with it, with *no chance* to damage the cell. Then this wooden cell-base can be forced into the midrib of the comb, where it will remain firmly attached.

E. F. Atwater.

Yankton, S. Dak., Oct. 23.

[There is considerable difference of opinion. Some prefer short-weight sections, and others will not have them under any consideration. For the former class the Ideal does not quite fill the bill. On the other hand, the 4×5×1⅜ or 4¼×5×1¼, running as they do nearer a pound, give better satisfaction. There has been quite a tendency toward the 4¼×5, because it can be used in the old-style supers by simply adding a rim to increase its depth.

With regard to the thickness of the section-blanks themselves, we are now making them a full ⅛ inch thick. Indeed, our product for 1900 will all be of that kind.

We put out a few pounds of the 18-to-foot foundation, but we have been afraid to catalog it for fear it might not be satisfactory. We have received favorable and unfavorable reports, but as yet we do not feel like pushing it until we know that there is a certain and real demand for such light-weight goods. In the hands of expert and skillful bee-keepers the 18-foot article will give good satisfaction, and reduce the midrib to a point that will satisfy the most exacting of connoisseurs of good comb honey.—Ed.]

DANZENBAKER'S PRIZE HONEY.

Mr. Root:—Mr. G. W. Bell, of Bell's Landing, Pa., brought the best 20 4x5x1⅜ plain sections of comb honey to the Philadelphia meeting, and was awarded the highest prize—50 cts. each—$10.00. Mr. E. J. Haight received the second prize, 25 cts. each, for the next best 20 sections—$5.00.

Committee: W. Z. Hutchinson, Flint, Mich.; Wm. A. Selser, 10 Vine St., Philadelphia.

F. Danzenbaker.

Washington, D. C., Oct. 30.

IN FAVOR OF THE SHORTENED SPELLING.

With pleasure I note that Gleanings grows better and better. Kindly register me as favoring the reforms of spelling as mentioned in a recent issue. The commonwealth will eagerly assimilate the delicate morsel as mentioned, and profit thereby.

E. F. Nall.

Browninton, Mo.

THE A. I. ROOT CO.'S MANUFACTURING PLANT AS SEEN THROUGH THE CAMERA.

BY E. R. ROOT.

Many of our readers have often expressed a wish to visit the Home of the Honey-bees; but owing to the great distances that pleasure has been denied them. Others who have called here have expressed surprise at the size of our plant. "Why," said one, the other day, "the Home of the Honey-bees is a good many times larger than I have been led to believe from the illustrations." And this opinion has been expressed by a great many who have come here. The fact of the matter is, the average picture on letter-headings, showing manufacturing plants, is usually so enormously exaggerated out of all proportion, that, when one does see a picture that tells the exact truth, he thinks it is a lie just the same.

To give our many friends a chance to see our place, without spending a good many dollars in railroad fare, we present here a series of *actual photographs* in half-tone, showing our plant from different points of view just as it is in reality. W. Z. Hutchinson has said that the Root Co.'s establishment is a good deal bigger *inside* than from what appears from the *outside*. However that may be, we can show the exterior appearance better than the interior.

The first one of the series is a bird's-eye view drawn by a local artist, Mr. T. D. Brown. This, from the point of view from which it is taken, is a very fair and accurate representation. It is the only one in the series that is not a photograph, for the reason that no camera could be elevated to a point that would take in this general view.

Now suppose we get off our imaginary perch where we are getting our birdseye, go around to the rear of the manufacturing plant, and finally clamber on to the top of the dwelling of A. I. Root. Having arrived here we get a view overlooking the apiary, as is shown in plate 2. This is not the work of any artist, but is simply a good fair photo showing the buildings just as they are, from the west side. The other buildings—warehouse, lumber-sheds, lumber, etc., stand at the right, and are out of view; but turning the leaves we find them in their proper position. Photo No. 3, looking from the southeast, showing the wood-working shop in the left foreground, is taken from a planing-mill just opposite. The new brick-work on the left shows the addition that was put on last fall, and is 20×55, three story and a basement. On top of the roof of the wood-working building as a whole, are shown the dust-separators by which the fine dust in making sections is separated from the excess of air, and then blown over to the large separator shown on the top of the boiler-house, just the other side of the Big 4 freight-car loaded with lumber for the Root Co.

The first floor of the annex contains our $1000 double-surface planer, the same directly connected to a 60-horse-power electric motor, for it requires from 25 to 50 horse power to run the big machine.

Plate No. 4 shows a view taken from the large warehouse, and represents the southern aspect of the main buildings—all except the one on which the photographer stands. The lumber shed shown in the foreground will hold a million feet of basswood lumber—enough, in fact, to make up an aggregate of 20 million sections, providing all the lumber was good enough to make sections. This lumber-shed is covered over, sheeted on its sides with corrugated iron, and is designed to keep the lumber, when cured, just right and in fit condition to work nice and dry.

Just beyond this structure is the annex, the main wood-working-shop, and beyond that is the boiler-room, brick stack, and the other buildings.

We will now get off the warehouse alongside of the Northern Ohio Railroad, running east and west, grab up the camera and belongings, and clamber up on top of the new annex just off from the main wood-working buildings. We poise the camera, and finally have the view shown in plate 5, taking in the roof of the lumber-shed and the warehouse, as well as a part of the lumber-yards and switch-tracks. In this yard, not all of which is shown here, there is represented something like $40,000 worth of lumber that was bought six months or a year ahead.

Having taken a general view of the plant as shown from the outside, we will now take a peep at the electric-power plant as shown in plate 6. At the left is the dynamo, 100 horse power, that carries the power by means of the subtile fluid, over the large cables shown at the left of the picture, over to the annex. The small wires above the switch-board run the small motors scattered over various portions of the plant. The little dynamo at the right furnishes electric light as well as power when the big machine is shut down.

The last plate shows a peep into the machine-shop where all our machines are built for section-making. On the erecting floors of this shop may now be seen three or four automatic machines that are in process of building—one for sanding sections, another for dovetailing, V-grooving, and scoring out the bee-ways of sections. There are two more machines for automatic gang-sawing, and planing the edges of the sections up into strips. Besides the new process for making comb foundation we have also a new process for making section honey-boxes, or shall have very soon.

This whole manufacturing plant represents an investment of something like $200,000, and is capable of turning out any thing the bee-keeper may require, from a queen-cage up to a 24-frame steam-power honey-extractor. In this one plant there are made annually anywhere from 50,000 to 75,000 hives, and from 14 to 16 million sections, besides vast quantities of other stuff that go to make up the requisites for the ordinary apiary.

A good many of our requirements in machinery are of such a character that it is impossible to buy them in the market, and, as a consequence, we have to build machines for our special work.

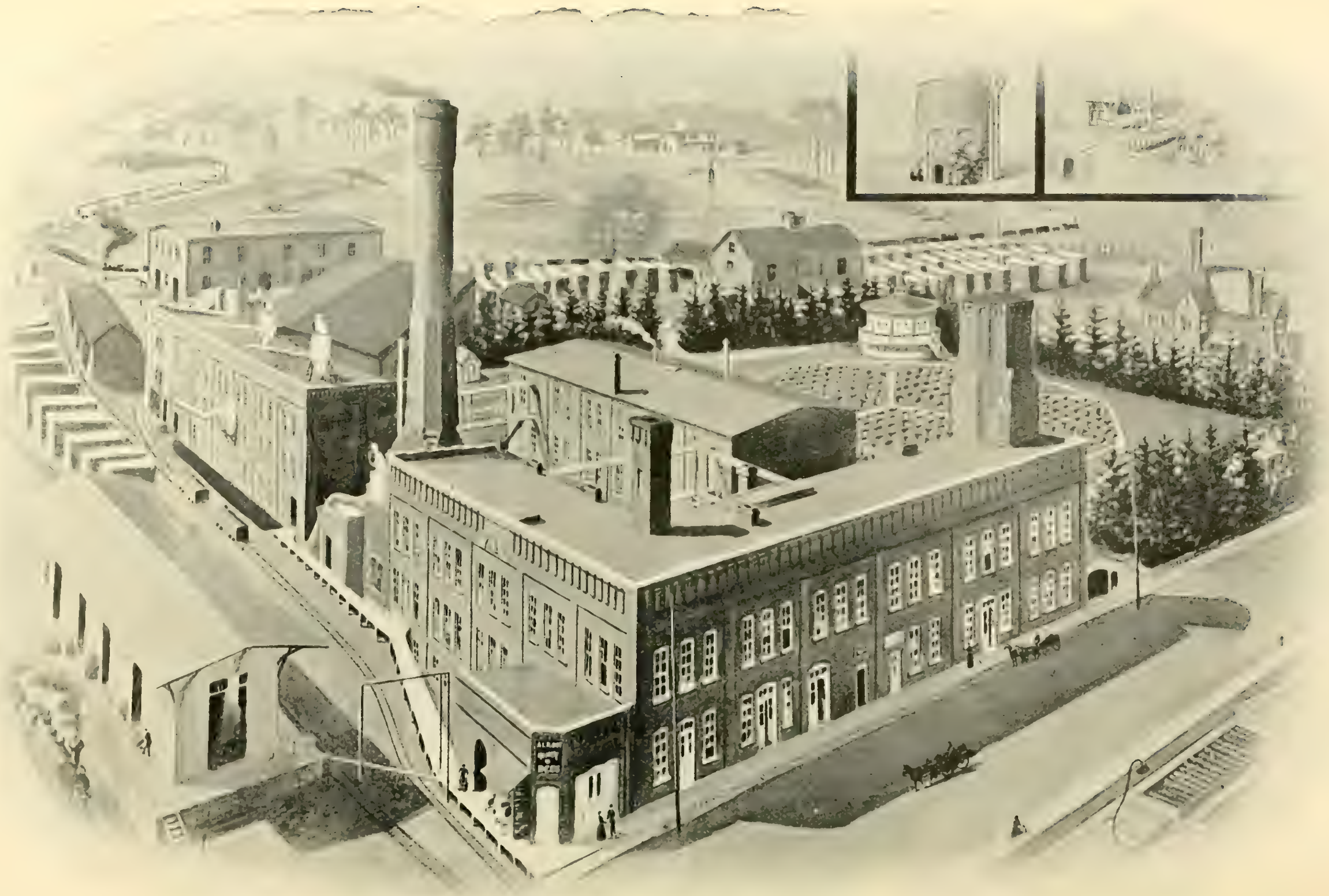


PLATE 1.—THE HOME OF THE HONEY-BEES IN 1899.

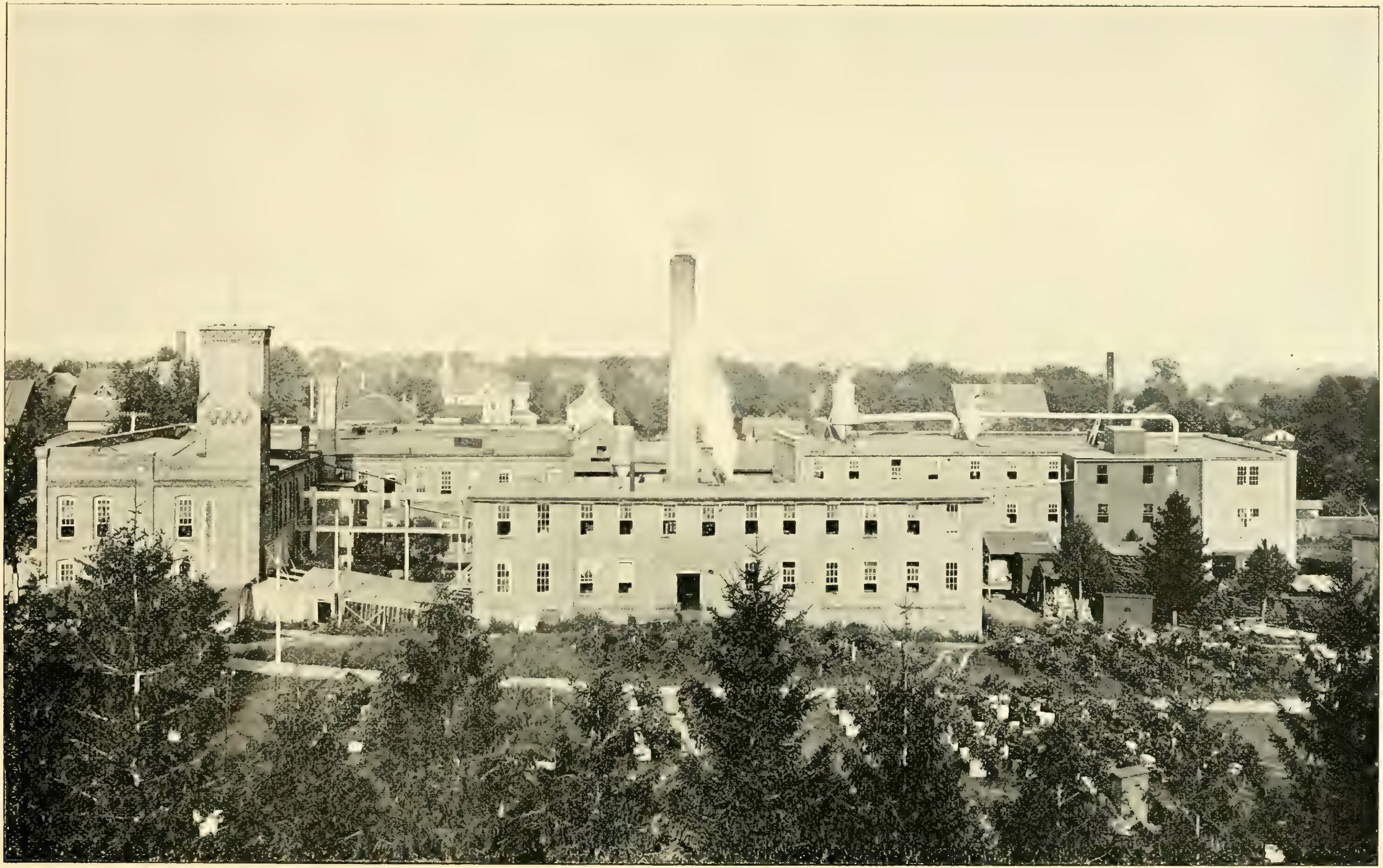


PLATE 2.—GENERAL VIEW OF THE HOME OF THE HONEY-BEES, 1899, LOOKING FROM THE WEST, AND OVERLOOKING THE APIARY.

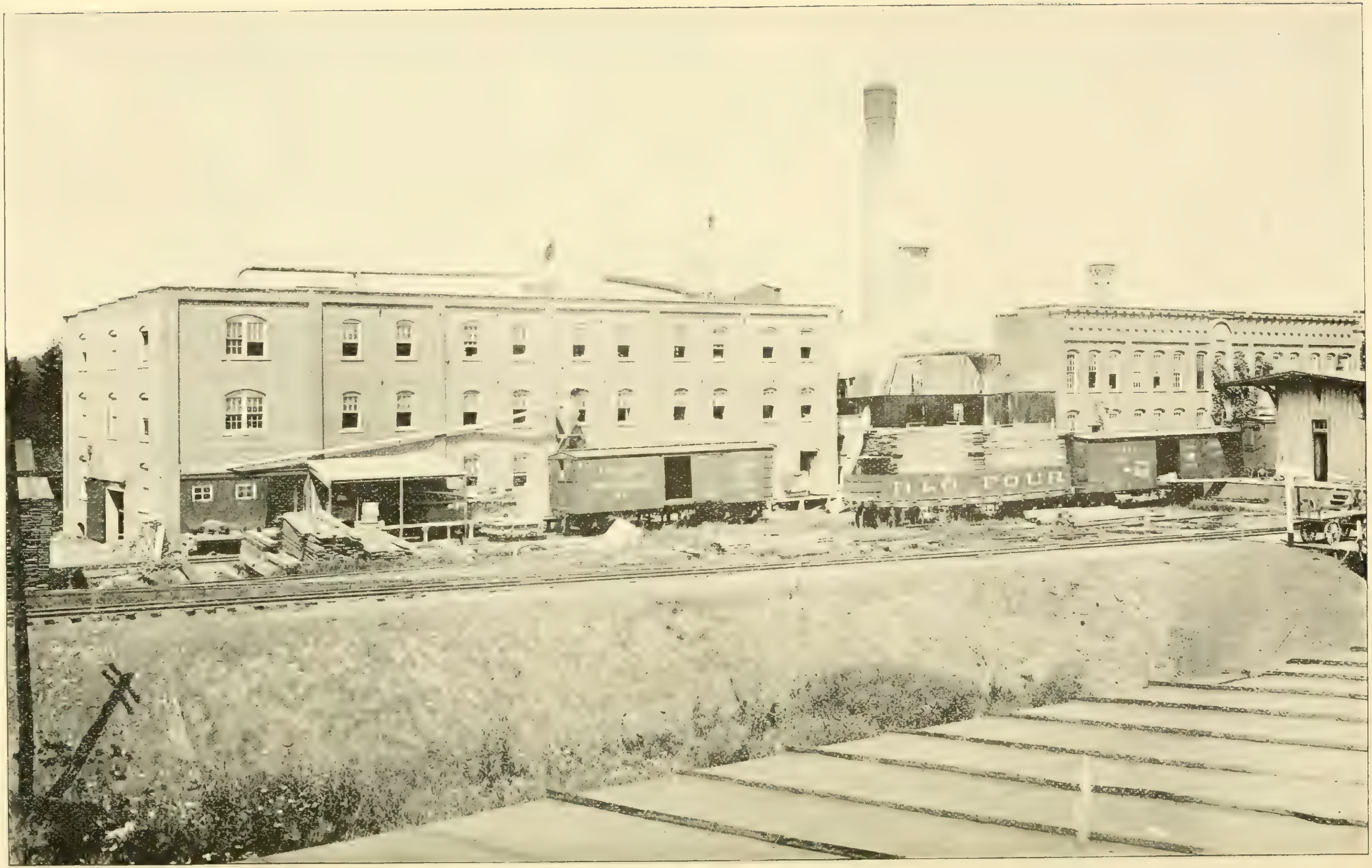


PLATE 3.—HOME OF THE HONEY-BEES IN 1899—VIEW FROM SOUTHEAST, SHOWING WOOD-WORKING SHOP IN LEFT FOREGROUND.

PLATE 4.—PART OF THE HOME OF THE HONEY-BEES IN 1899, LOOKING FROM THE SOUTH.

PLATE 5.—PART OF LUMBER-YARDS OF THE HOME OF THE HONEY-BEE, 1899, LOOKING FROM THE TOP OF THE LUMBER-SHED.

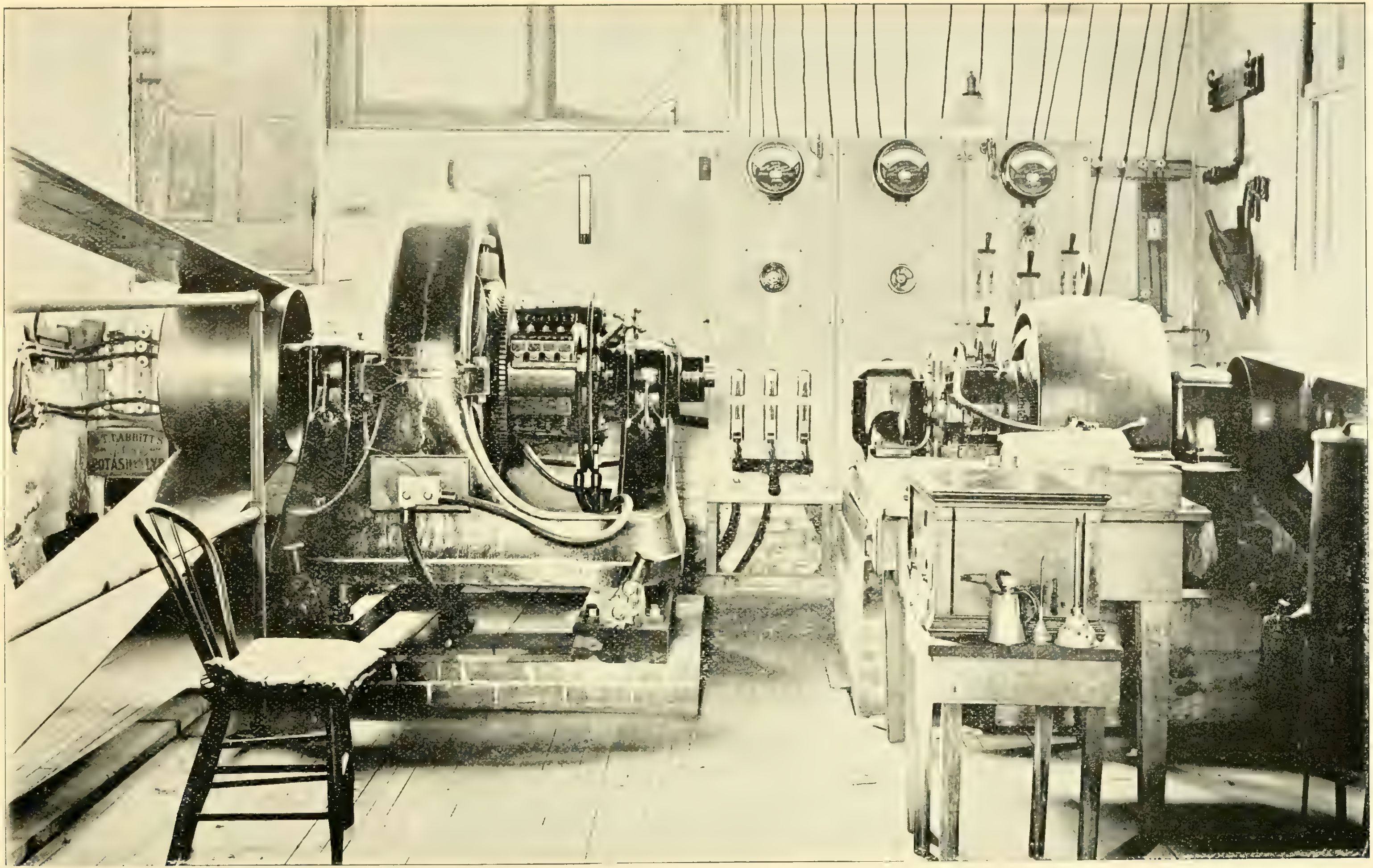


PLATE 6.—ELECTRICAL GENERATING PLANT OF THE HOME OF THE HONEY-BEES, 1899.

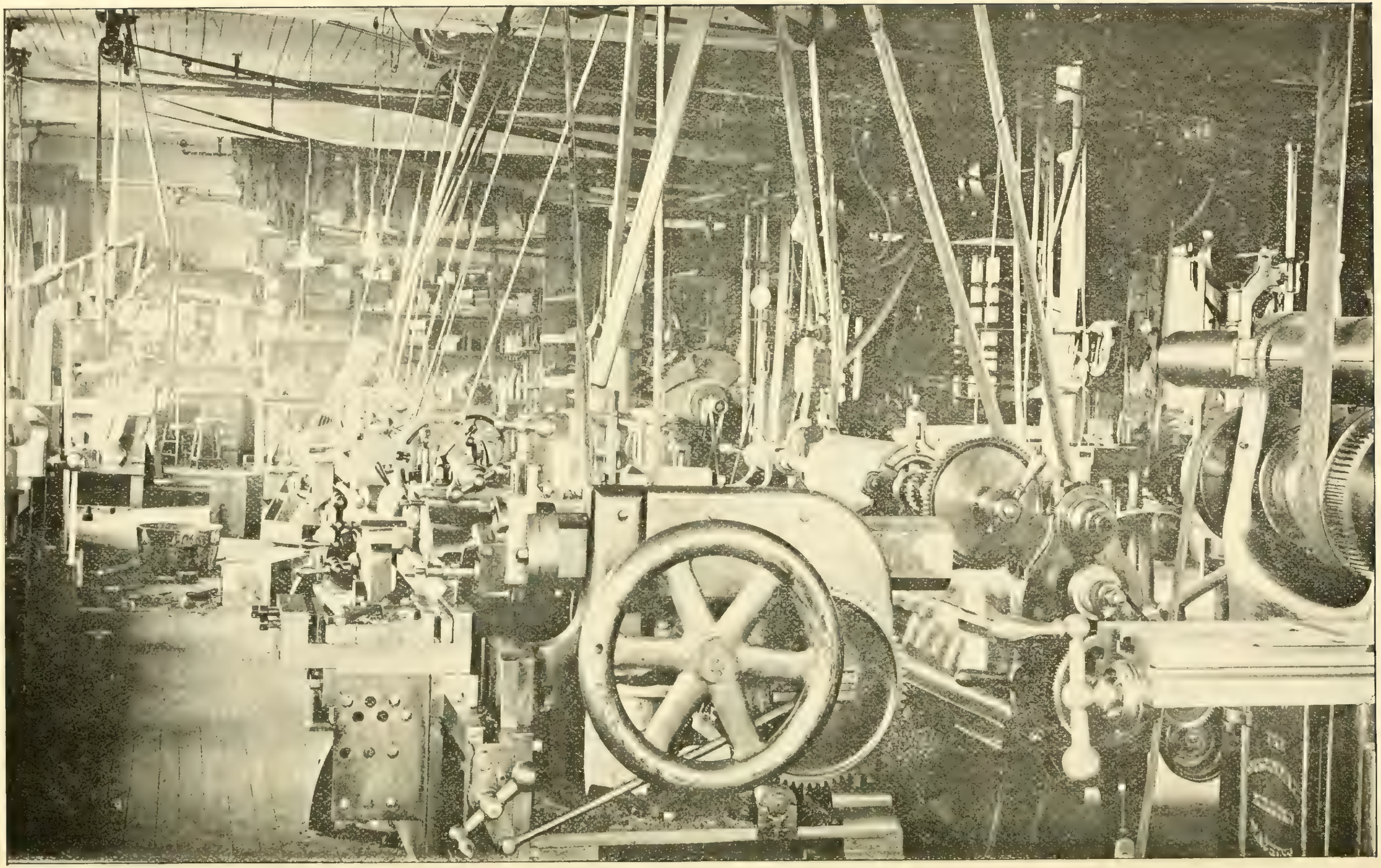


PLATE 7.—VIEW FROM ONE CORNER OF THE MACHINE-SHOP OF THE HOME OF THE HONEY-BEES.

BEE-SUPPLIES FOR 1900.

BY E. R. ROOT.

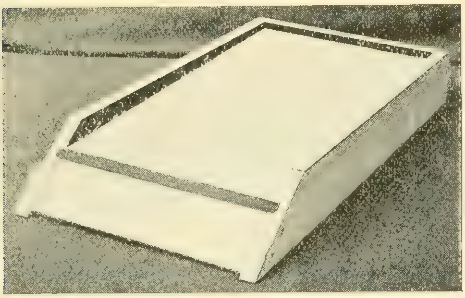


FIG. 1. COMBINED BOTTOM-BOARD AND HIVE STAND.

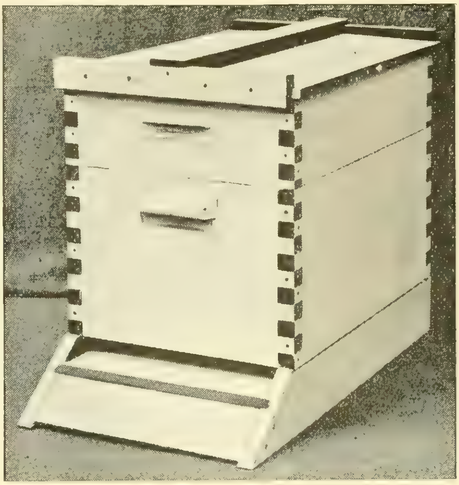


FIG. 2.—DOVETAILED HIVE ON THE COMBINED BOTTOM-BOARD AND HIVE-STAND.

There will be very few changes made in supplies for the coming year. The styles and models put out last season and the one before gave such universal satisfaction that but very few changes seem to be required. But what there are, are of such a character that they will not affect the combination of supplies already in use or those the dealer has on hand. Perhaps the most important change will be the substitution of what we call the Excelsior cover for the regular Danzenbaker. In some climates the latter would, under the influence of hot dry winds and sun, shrink enough to let in the water; so, accordingly, we have devised a new cover so constructed that if there is any shrinking it will have a tendency to

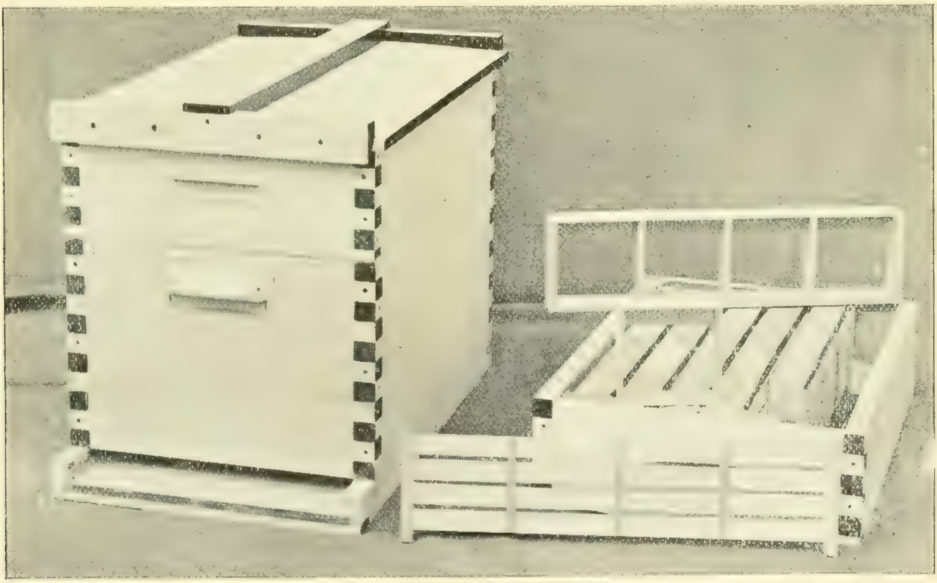
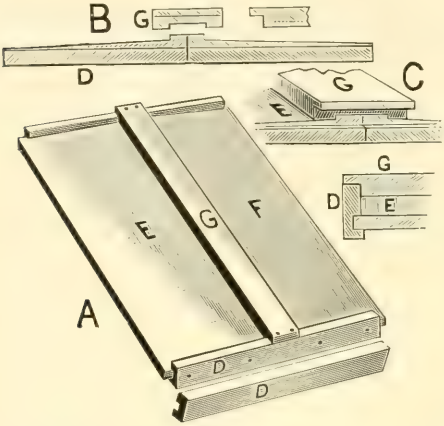


FIG. 3.—The above shows the AE64P | 8 Dovetailed hive—a 1½-story hive for comb honey, with 4¼-inch plain sections. The super at the right is opened up, showing the 4¼-inch plain sections used in plain section-holders with P fences. When both supers are included it becomes a two-story hive for comb honey, and is styled AE644P | 8. If neither super is included it is then a one-story hive, and styled AE6 | 8. When the sections and foundation starters are not included the figures are changed so that the 1½-story hive without sections and starters is styled AE52P | 8 ; the two-story, AE522 | 8, and the one-story, AE5 | 8.

These different styles are also furnished in ten-frame size, and these are indicated by changing the last figures from 8 to 10, as AE64P | 10, etc. A stands for the Danz. bottom; E for the Excelsior cover; 6 for the brood-chamber with frames, division-board, and foundation starters; 4P for the super with 4¼-inch plain sections, starters, section-holders, and fences.

close up the gaps and make the cover tighter. The cut herewith shows what we call the Excelsior. It consists of three pieces as before, and two end cleats; but the center or gable piece is channeled out on the under side to correspond with the projections on the edges of the two side pieces that come together.



The principle of this is a good deal like the old Higginsville, with this addition—that the two side or gable pieces have perpendicular shoulders, and the ridge-piece is channeled so as to straddle over these two shoulders, leaving *perpendicular* edges of contact, rendering it impossible for the water to work its way up hill and finally into the cracks between the two boards. By referring to the engraving it will be seen that the three pieces are held together by the end cleats in the usual manner.

The Danzenbaker cover answered in most portions of the United States, especially in the north. Since our trade opened up in Jamaica and Cuba it has been found necessary to construct a cover that will stand not only in the northern part of the United States but in the Southern States and in the islands of the sea.

The Danzenbaker bottom-board remains without change; but owing to the fact that there has been a demand for a combined hive-stand and bottom-board, we have found it necessary to have something like that shown in Fig. 1. This bottom-board consists of side pieces ⅞ inch thick, having grooves on the inner sides to receive boards ⅜ inch, said grooves being set in at an angle so that the bee-space at the extreme rear increases from ⅜ to 1¼ in front. Mr. S. T. Pettit, of Belmont, Canada; Vernon Burt, our neighbor, a disciple of Pettit's, and many others, have shown the advantage of a bottom-board having a slanting floor, and here we have it; not only that, but for a slight additional cost we have a hive-stand as well. A complete hive on this stand is shown in Fig. 2.

As I have already stated, the hives—that is, the supers and internal fixtures and bodies—will be the same as those put out last year;

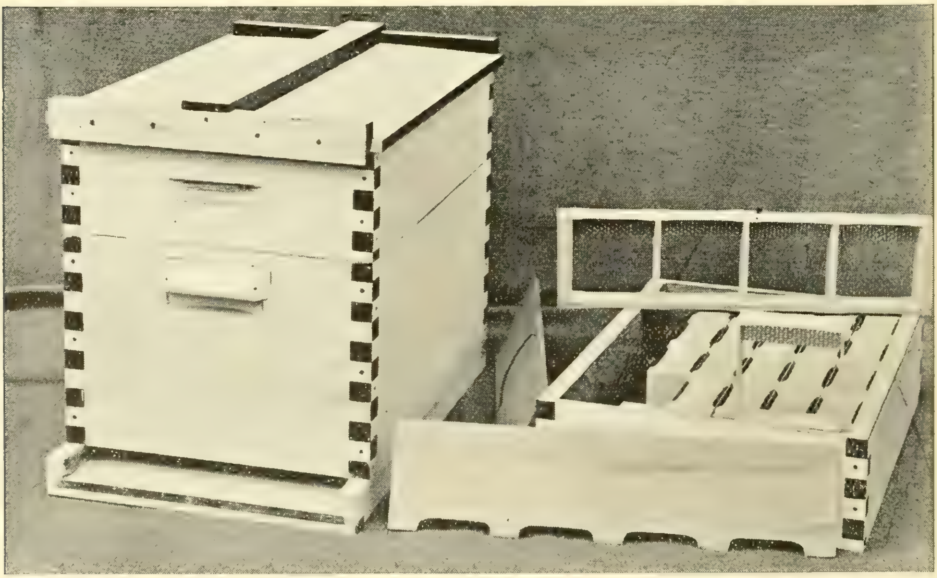


FIG. 4.—The above shows the AE64S | 8 Dovetailed hive—a 1½-story hive for comb honey, with 4¼-inch slotted sections. The super at the right is opened up, showing the 4¼-inch slotted sections used in slotted-section holders with slotted separators. You will observe that the only difference between this hive and the foregoing is in the inside fixtures of the super. This having the slotted 4¼-inch sections, section-holders, and separators, while the first has the plain 4¼ sections, section-holders, and fences. This difference is indicated by the change of the letter P to S in the number. This hive is also furnished in all the different combinations and sizes. With this hive will be included this year the wire spring instead of the wooden wedge back of the follower. You will see the spring attached to the follower in the above illustration. This is a decided improvement. You can also have the option of the slat separator in the S supers if preferred.

and in a majority of cases the Danzenbaker bottom-board that gave such good satisfaction last season will probably be used in the various combinations, so that the only distinctive difference between the hive of 1900 and the previous year is in the cover itself.

The next three illustrations show the hive for 1900 fitted for plain sections 4¼ square for ideal sections 3⅞×5, and for 4¼ sections with beeways. A description of each combination is under each picture.

Incidentally I may remark in passing that we have formerly used wood engravings; but from the fact that it has been almost impossible to get accurate pictorial illustrations in wood we decided this year to try half-tones, pure and simple; and the results so far have been so gratifying that we shall use them exclusively in the future, probably.

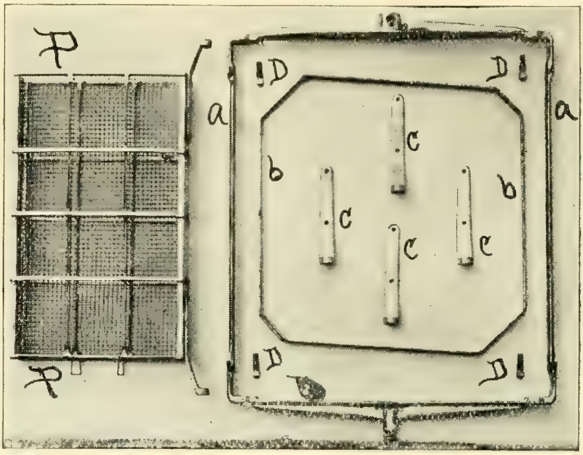


FIG. 6.—TWO FRAME COWAN REEL FRAME.

HONEY-EXTRACTORS FOR 1900.

During the last three or four years we have been making constant improvements in our honey-extractors. The reversible machines we put out four or five years ago, as nice as we then thought they were, are crude in comparison with the fine machines that are gotten out now. All the internal work has been redesigned with a view of securing lightness as well as neat and workmanlike construction. The castings have been reduced in weight, and yet, owing to the superior pattern, they are much stronger than the reels we formerly put out. Then the whole is neatly galvanized so that the internal work of the extractor will be

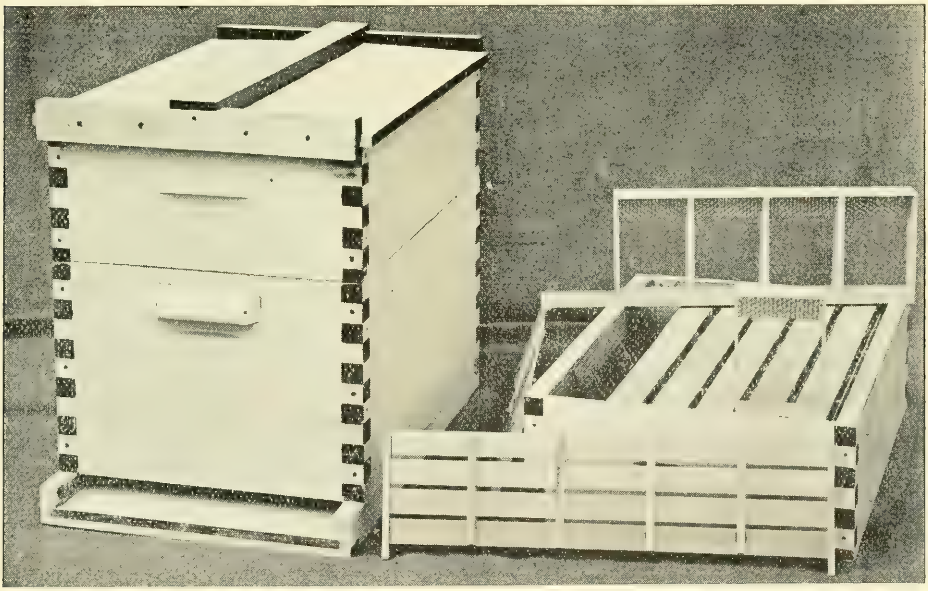


FIG. 5.—The above shows the AE64I | 8 Dovetailed hive, a 1½-story hive for comb honey with 3⅝×5 plain sections (Ideal). The super at the right is opened up, showing the Ideal sections, five in a row, supported on a plain slat ⅜ inch thick, in a deep super, with I fences. This super takes 30 sections in the eight-frame size, where only 24 of the 4¼-inch sections can be placed in the regular shallow super. These sections hold the same as the 4¼ of the same width, and satisfy the demand for a tall section. In some markets, which are educated to a full-weight section, these are not as desirable as the 4×5×1⅜ plain, which hold more nearly a pound. This size can not be used to advantage in the 8-frame super unless they are placed on slats crosswise the deep super, and short fences are used. A super so equipped is designated by the letter L in place of I, and holds 30 4×5×1⅜ plain sections on L plain slats with 11 L fences.

entirely free from any tendency toward rust of any kind. The reels of the two-frame Cowan instead of being made of several pieces riveted together are now made *in one piece*, shown at A A, in Fig. 6. We at first thought it would be impossible to make them in one complete casting; but after we had some constructed we found they were really stronger than the heavier made on the old plan. The comb-pockets, as at P P, in Fig. 6, have been very greatly improved in the matter of bracing, and have been subjected to the severest test. The cross-arm is also now made of one piece instead of several pieces bolted together, with the result that we secure greater strength as well as beauty of design. The cans, made of galvanized iron, are covered with a transparent blue enamel that will stand almost any amount of hard usage without tarnishing, scaling, or scratching.

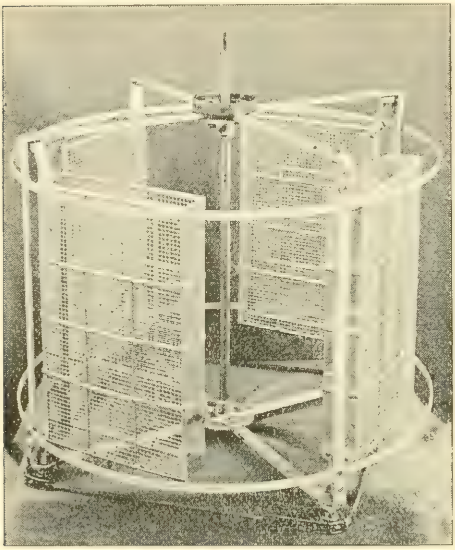


FIG. 7. REEL AND BASKET-WORK OF THE NEW FOUR-FRAME COWAN EXTRACTOR.

The four-frame machine is constructed on the same general lines, with the exception that reversing one pocket reverses the others simultaneously. A feature of this machine, as well as of the two-frame Cowan, is, that it may be reversed while in motion. The reel-frame is constructed of channel iron and light malleable castings, and the whole is galvanized* except the steel shaft and the sprocket-wheels and chain, which are of steel and black iron. Another feature of the new machine is the use of a street-car band brake on the shaft itself—a brake that is powerful, and yet requires only a slight pressure on the end of the hand lever.

Still another feature is the use of a ball-bearing main journal. These balls are $\frac{5}{16}$ inch in diameter, and can be plainly seen just below the small pinion-wheel. Being located on top of the cross-arm, there will be no danger of honey getting into and gumming them up.

The general plan of the four and six frame Cowan is the same as that of the two frame, and the little Novice extractors are constructed on the same general lines, only the basket-work is not reversible.

SUPERS.

The hive supers themselves are just the same as last year. As constructed for 1899, they were as perfect as it was possible to make them, and we do not know how they could be improved. Our 1900 catalog will offer supers for plain sections as well as for slotted sections as before. "You pay your money and take your choice."

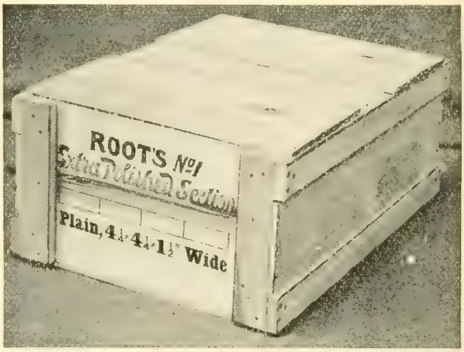


FIG. 8.—CRATE OF 500 SECTIONS.

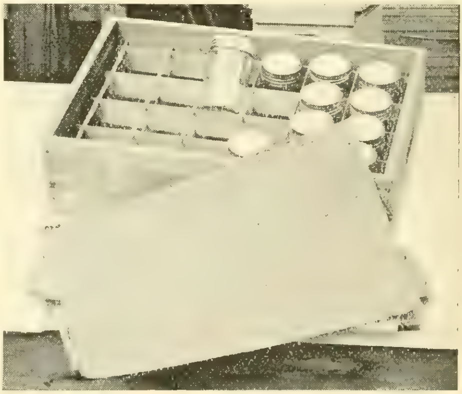


FIG. 9.—THE NO. 25 JAR.

Fig. 8 is our package for 500 sections; and instead of putting them up in lots of 1000 they will be boxed in 500's. Fig. 9 shows our box containing 24 No. 25 self-sealing jars. This is one of the most popular self-sealing packages that was ever sold, and has given universal satisfaction to the trade generally. Each jar is partitioned off by itself, and then the whole 24 are covered with a piece of heavy corrugated paper.

---

* It is only the two and four frame L. size that have galvanized fittings inside.

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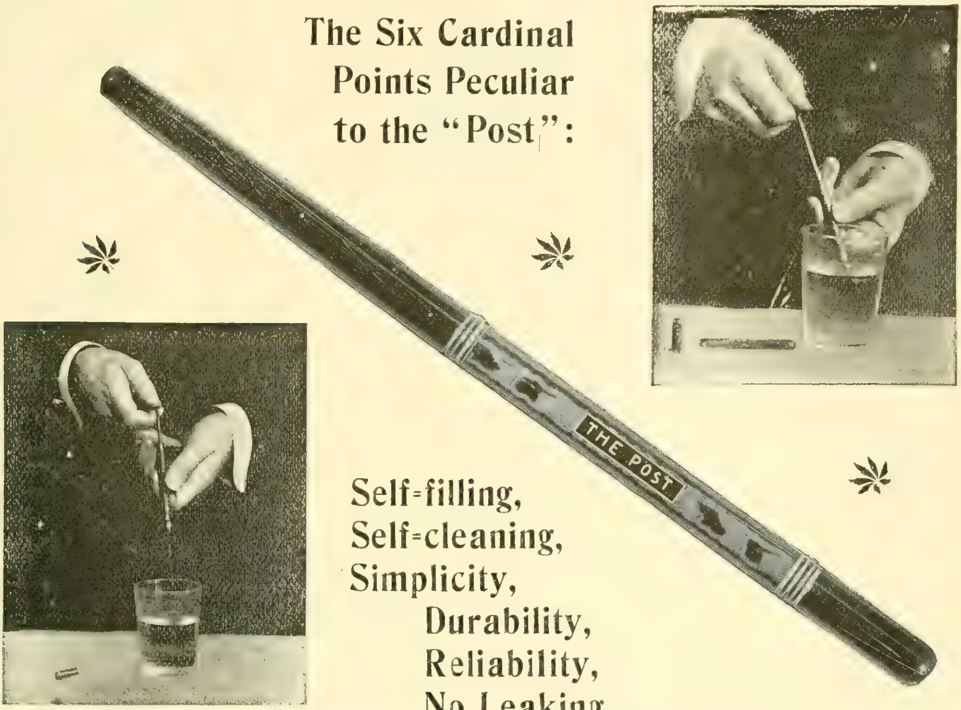

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Self-cleaning,
Simplicity,
Durability,
Reliability,
No Leaking.

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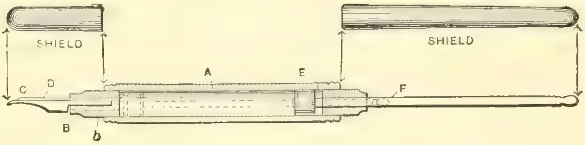

For two new subscriptions to Gleanings and your own renewal with $3.00 ;
or for one new subscription and your own renewal, with $2.50 ;
or your own subscription will be advanced 2 years, and the pen furnished for $2.50.

In each case all arrears, if any, must be paid in addition, the above offers being for subscriptions fully in advance only. I believe we can say truthfully, without fear of contradiction, that no fountain pen ever put upon the market ever received in so short a time so many unsolicited testimonials from such distinguished men as the POST. The above drawing shows its construction. To fill the POST, all you have to do is to dip the nib into the ink-bottle, draw out the plunger, and the pen is ready for use. Compare this with unscrewing the ordinary style, and refilling with a glass filler that you can not always find when wanted. The self-cleaning feature of the POST, as illustrated, will also commend itself. With most pens, specially prepared ink must be used or they are soon of no use, because they become so gummed up. and it is well nigh impossible to clean them. With the POST you simply dip the nib in water, draw the plunger back and forth like a syringe or squirt-gun, and in less than five seconds it is clean and free for a perfect flow of any ink that may be handy. We give only a few of the many testimonials from noted men in various callings who have written merited words of praise for this most valuable invention. We can not offer the pen for sale for less than $3.00; but by special arrangement we are able to offer it free as a premium with GLEANINGS in any of the following combinations: All arrears, if any, must first be paid at $1 00 a year. Then for $3.00 we will send GLEANINGS for one year, or till Jan. 1, 1901, to two new names; for one year to yourself, and send you the pen free. For $2.50 we will send you the pen and GLEANINGS for one year, and to one new subscriber a year; for $2.50 we will send the pen and GLEANINGS for two years. If you have ever been disappointed with a fountain pen we assure you that you will not be with this one. See what other people say of it on the opposite page.

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TESTIMONIALS.

JOSIAH STRONG, D. D.

LATE HON. LEWIS MILLER.

IRA D. SANKEY.

Few men are better known in America than Dr. Strong. He has always been to the front in religious and social movements, and is the author of the well-known work "Our Country." In his own handwriting he says of the Post:

"A perfect fountain pen at last! I have been hunting for it upwards of twenty years. I have tried many, and I can assure you they have *tried* me. I have had little satisfaction even from the best, but the Post leaves nothing to be desired. I am delighted with it."

Josiah Strong.

Bishop Vincent, author of "The Church at Home," etc., carries a number of fountain pens. Note what he says of the Post in comparison with the best:

"The pen is all you promised. I carry four fountain pens, and now the Post makes the fifth, and the fifth is by far the best I have—and all are good."

J H Vincent

We thank the Governor of Colorado, the Hon. Alva Adams, for his fitting testimonial, which he sends in his own handwriting as follows:

"The Post pen is almost an ideal fountain pen. I can suggest but one improvement—enlarge the barrel so as to carry a larger supply of ink—though when exhausted it requires little more trouble to replenish than to dip an ordinary pen in an inkstand. To the traveler it is a constant joy. May you sell many; the buyer will get a good pen; the money will go to a noble cause."

Alva Adams.

The world's greatest singing evangelist, who has thrilled thousands and tens of thousands, now raises his voice in praise of the Post Fountain Pen.

Mr. Sankey sends the following characteristic letter:

"I have used the Post pen for some time and have had great satisfaction with its use. It never fails or gets cranky. One can at least have clean hands by using the Post, whatever the heart may be."

Ira D. Sankey.

Dr. Lyman Abbott, the editor of the "Outlook," and former pastor of the Plymouth Church, needs no introduction. We know the full value of the beautiful testimonial which he has just forwarded and which is as follows:

"A number of years ago I had a Prince fountain pen, which went out of existence, and I was sorry, for I preferred it to all others for the reason that it had no filler. Your "Post" self-filling fountain pen has the advantage of the Prince, and one which it did not possess, namely, greater simplicity. To me it is a great advantage to have a fountain pen which requires no filler and can be filled at any time, and at any inkstand, without the possibility of inky fingers or blotted paper or desk.

"Enclosed please find my check for $3.00 for the pen received, which I cordially recommend. It will be found especially convenient for travelers."

Lyman Abbott.

LYMAN ABBOTT, D. D.

BISHOP VINCENT.

HON. ALVA ADAMS.

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This is a complete work of instruction on silk culture, by Nellie Lincoln Rossiter, a practical silk-culturist; 32 pages. Silk culture is the favorite pursuit of many ladies in our land; and all who are interested will find this little work very instructive. The price printed on it is 25 cts., but we sell them for 10 cts. Postage 1 cent.

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By Prof. A. J. Cook. This was a most valuable work in its time, but is now rather old. It sold for 25 cts. We will close out the few we have on hand at 10 cts. each, postage 2 cts. extra, and it is a bargain at this price; contains 48 pages the size of this, and 50 illustrations of insect pests.

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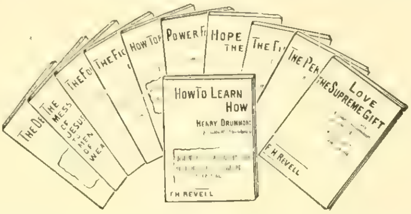

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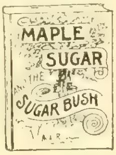

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TILE
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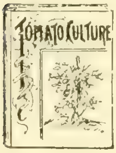

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POTATO
CULTURE

The A B C of Potato Culture.

Paper, 4x5, illustrated. This is T. B. Terry's first and most masterly work. The book has had a large sale, and has been reprinted in foreign languages. The second edition was almost entirely rewritten. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. Price 40c postpaid.

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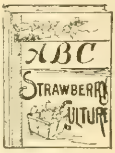

Paper, 150 pages, fully illustrated. This is Terry's latest small book, and has received some very high words of praise. Who among rural people does not have a little garden-patch? If you would learn to raise in it that most luscious of all fruit, the strawberry, with the best results, you can not be without this little book. Even if you don't grow strawberries you will be better for reading it.

OFFER 5A.—For 5 trial subscribers for three months and 75c, we will send either of the following books postpaid.

What to Do, and How to be Happy While Doing It.

The above book, by A. I. Root, is a compilation of papers published in GLEANINGS IN BEE CULTURE in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment around your own homes. The book is mainly upon market-gardening, fruit culture, poultry-raising, etc. Price in paper covers, 50c. Can furnish you a cloth-bound copy for 25c additional. If you want this be sure to specify it.

Illustrated Pilgrim's Progress.

We have secured some of a very fine English edition of Pilgrim's Progress, illustrated with over a hundred very realistic pictures. The book is 16mo, printed on very fine paper, containing 381 pages, and the illustrations are the most striking, and true to the characters represented, that we have ever seen in the most expensive editions. The binding is cloth, richly illuminated in six colors, with title in rich gold leaf on back and side. There is no paper wasted in wide margins; in fact, there is so little trimming that some of the leaves have to be cut apart. It is a book of such quality and make-up as to bring easily $1.50 at retail a few years ago. In this day of cheap books and low prices it is necessary to close out the last of the edition away below actual value. We offer these at 50c each postpaid.

OFFER 10 A. The Best of All. For ten trial subscribers for three months and $1.50, we will send you postpaid a copy of our new edition A B C of Bee Culture. Already nearly one hundred of our readers have secured this book in this way. Remember you have to send us only 10 trial subscribers with $1.50 to pay for these, and the A B C which we sell for $1.20 will be sent you postpaid. If you fail to make up your full list of ten names you can send GLEANINGS as a present to some of your bee-keeping friends to complete your list, or you may count each name as one-tenth the price of the book and send cash for balance. If you prefer you may have GLEANINGS IN BEE CULTURE one year in place of the A B C of Bee Culture. See another page for particulars of the A B C.

The A B C of Bee Culture.

1899 Edition. The Only Cyclopedia on Bees. 2000 Copies sold in Eight Weeks.

This book is fully up to date, and should be in the hands of every bee-keeper, even if he has one of the older editions. In none of the previous editions have so many subjects been re-written, nor as many new subjects added, as in this edition. If you want the best and latest information on practical bee-keeping, order the A B C of Bee Culture.

After the twenty pages of introductory matter there are 340 pages devoted to a general treatment of the subject of apiculture. Following this, and continuing for eight pages, is a series of answers to as many knotty questions that are propounded by beginners. Next is a glossary of three pages, defining terms peculiar to bee-keeping. Then for eleven pages more there are reviews and comments by two eminent bee-keepers—G. M. Doolittle and Dr. C. C. Miller, on the general subject-matter contained in the body of the book. This is indeed an interesting and valuable feature. The remaining portion of the book is taken up with biographical sketches occupying 32 pages, and a picture-gallery containing pictures, with a short description, of some of the most important apiaries of the world. Last of all is the index, comprising nine pages.

The entire work contains 475 pages and nearly as many engravings, a very large part of which belong to the modern half-tone class, showing nature and art as they really are. Something like fifty new full-page half-tone engravings have been put into the new book, most of which are printed on what is known as enamel book paper—the finest there is sold.

Sixty seven thousand copies have now been printed. About 2000 copies sold since Sept. 25. It is for sale in the United States by all dealers in bee-keepers' supplies, and the publishers of all bee-journals; also by most of the leading agricultural and horticultural papers, and large booksellers and seedsmen. Send your order where it is most convenient for you. Price $1.20 postpaid, or by freight or express with other goods, at purchaser's expense, $1.00. We also club it with Gleanings in Bee Culture, one year, postpaid, for $1.75.

The A B C of Bee Culture was received all right, and I am well satisfied with it. I should have been $50.00 better off if I had got the book three years ago.—*John Frizzell, Harrison, Mich.*

We are glad to see what a large space you give to ideas expressed by us, and we thank you for this.—*C. P. Dadant, Hamilton, Ill., Oct. 14, 1899.*

The A B C book is received, and I am much pleased with it. This is certainly a fine book, and every bee-keeper should have a copy.—*Mrs. M. L. Williams, Nimrod, Minn.*

I have owned several editions of the A B C of Bee Culture, and must have this too. I prize also Gleanings for the wholesome moral influences in connection with the fascinating art of bee-keeping.—*John S. Adams, 1125 Bluff St., Waterloo, Ia.*

We have received a copy of the new edition of A B C of Bee Culture, by A. I. Root, and just revised by Ernest R. Root. It is indeed a fine work, and every bee-keeper should own one, and read thoroughly.—*Geo. W. York, Editor American Bee Journal, Oct. 5, 1899.*

We have just received a copy of the latest edition of the A B C of Bee Culture, published by The A. I. Root Co., Medina, Ohio. The book has been revised, having much new and useful information added. It is the most excellent encyclopedia on the subject of bees and the manufacture of bee-keepers' supplies we know of, and we heartily recommend it to any one keeping bees.—*R. B. Leahy, Editor Progressive Bee-keeper, Oct., 1899.*

We acknowledge receipt of a copy of the A B C of Bee Culture, and we would compliment you upon the handsome appearance of the book and its contents.—*Ralph W. Grout, Editor of Exporters' and Importers' Journal, New York, Oct. 18, 1899.*

We have just received a copy of the A B C of Bee Culture. This is an excellent work on the subject—clear, definite, and practical—a work that should be in the hands of every bee-keeper or intending bee-keeper. We recommend it to our readers.—*Editorial in The Canadian Bee Journal, Nov., 1899.*

This is a well-known cyclopedia on bee culture, of which 60,000 copies have been sold in this country during the last twenty-two years. In the present issue many of the articles have been rewritten, and others so extensively revised that the book, as a whole, is practically a new work. In an appendix are presented biographies and portraits of noted bee-keepers, together with pictures of the most noted apiaries.—*The Review of Reviews, Nov., 1899.*

I must thank you for your kindness in sending me a copy of your new edition of the A B C of Bee Culture, which I have cursorily perused with great pleasure. I see there is a great deal of new matter introduced to the advantage of the book. I have sent a short notice of it for the review column in *British Bee Journal.* Your plan of revising every edition and eliminating obsolete practices and appliances is a very good one, and is the only way to keep up with the times, because a few years make such a change in bee-keeping, and those books written eight or ten years ago are quite obsolete. There are only three books that I know of that are issued on the same principle, and these are your A B C, Bertrand's Conduite du Rucher, and my Guide Book.

The foul-brood photo is an improvement on the last, as it shows a larger surface, and is more clear. In all respects this edition is an improvement on the last, and I must congratulate you.—*Thos. Wm. Cowan, Pacific Grove, Cal., Oct. 20.*

If there is any book on bee keeping of which bee-keepers have reason to be proud, it is Root's A B C of Bee Culture. I am reminded of this by the receipt of a copy of the latest edition, which is just out. There is probably no firm in the whole wide world possessing the facilities and advantages of The A. I. Root Co. for getting out a work of this kind. It has plenty of capital and a thoroughly equipped printing-office. More than this, there is an experience of more than a quarter of a century in actual, practical bee-keeping, and in publishing a thoroughly progressive, up-to-date bee-journal. More than any one else, an editor has an opportunity for being fully informed regarding the actual state of the industry which his journal represents. Thousands of letters from all parts of the country pass under his eyes each year. In order that the best possible advantage might be taken of the knowledge thus secured, The Root Co. has been to the expense of keeping the book standing in type. As often as new discoveries or changes are made, a corresponding change is made in the subject-matter of the A B C. By this method the last edition of the book is up to date. It can not be otherwise than that the edition just out is decidedly the superior of any previous editions. I might go into details, but the advertisement on the back cover of the Review has saved me that trouble. I can as thoroughly endorse that advertisement as though I had written it myself as an editorial notice. When a beginner writes and asks me what book he'd better buy, I unhesitatingly tell him, "Root's A B C of Bee Culture"—and I have a book of my own to sell.—*Editorial in Bee-keepers' Review, Oct., 1899.*

EDITORIAL

BY

E. R. ROOT

JUST before going to press I have made up my mind to make an extra effort to attend the Colorado Bee-keepers' convention at Denver, Nov. 27, 28, 29.

SEND this number to your friends who may be interested in knowing about The A. I. Root Co., their manufacturing plant, and some of the things that they make.

DON'T fail to read over our very low clubbing offers on page 866. In many cases we can give you two papers for the price of one, and in others for a slight advance.

BY the Honey Column in this issue it will be noticed that prices have been climbing up and that the demand is active. Don't hold your product too long, as prices may decline.

OUR new solar wax-extractors for 1900 will be modified so as to take in the Rauchfuss idea, as illustrated and described on page 769. By the way, we have recently heard that this same plan has been used in California for years.

W. J. CRAIG is the new editor of the *Canadian Bee Journal*. This paper has put on a new and tasty cover, and in other respects gives promise of more improvements. We extend to Bro. Craig our right hand of fellowship, and wish him every success.

REPORTS are coming in, showing that white clover promises well for next season, because it is found in vacant fields everywhere; and if it is not winter-killed we shall expect next summer plenty of clover ; and then with the clover shall we have the honey? That remains to be seen.

WHILE our paid-up subscription-list is now running up toward the 11,000 mark, this particular issue will reach an edition of an even 30,000 copies. Those into whose hands this comes for the first time, or who are not now taking GLEANINGS, are referred to the very low liberal premium offers made on page 866.

WE expect to winter our colonies in the so-called barns out on summer stands. A chaff-hive division-board will be placed on each side, and on top another story filled with packing material. Those barn colonies are big rousing ones, and appear to me as if they ought to winter, even though they are given only a single-walled hive.

THE Chromotype Engraving Co., whose advertisement appears elsewhere, made all the half-tones for this issue. In fact, they have done all our work in this line for the last two years. They are pioneers in this business, and seem to know how to make a good first-class printing-plate.

THE executive officers of the United States Bee-keepers' Association are already at work on the program for next meeting, to take place at Chicago. The stereopticon feature took so well at the Philadelphia meeting that there will probably be something along the same line at Chicago.

OWING to the difficulty of getting photographs and a new engraving in time we are not able to present the Danzenbaker hive for 1900 along with the other hives in this issue. This hive remains practically the same as last year, with the exception of the cover, which embodies some new features. The new Danzenbaker cover will be quite different from the one that bore his name last year.

WHILE we have taken some space in this issue to show the manufacturing plant of The A. I. Root Co., we would cheerfully show the works of any of our competitors if they will furnish us good clear photos. GLEANINGS believes in treating its competitors as fairly as it would treat its own people, and we hereby extend the courtesies of our columns to our brethren in the craft.

EXPERT AT LABELING HONEY.

AN interesting biographical sketch of Mr. Selser, the honey-man, appears on the front page of the *American Bee Journal*. Among other things the editor says:

> The honey for the season's trade is all bottled in one month—August—it requiring 24 hands to do the work, but Mrs. Selser herself does all the labeling. Mr. S. says she can label as many bottles in a day as any three other girls, and do it better There's a helpmeet that's worth her weight in—well, gold is too common to express it, so we'll let Mr. Selser fix her value.

It is a little risky to say something nice of another man's wife; but I will say this much: Those of us who had the honor and privilege of being entertained at Mr. Selser's home realized that his "better half" is not only a queen in a bee-keeper's home, but a royal entertainer.

AN OUTLET FOR FERMENTED HONEY.

CHALON FOWLS, the man who got up so many cooking-recipes, says that honey partly fermented is the very best for cooking purposes. Indeed, some bakers endeavor to get their honey into a ferment before they use it. Here is a hint for bee-keepers who may have honey on hand otherwise good but a little fermented. There is hardly a doubt that many a baking concern will take honey fermented, even in large lots.

THE NEW EDITION OF THE A B C OF BEE CULTURE.

FROM the fact that something like six months intervened between the new and the old, this book seems to have filled a long-felt want. Some 2000 copies out of 5000 have already been sold. I understand that Prof. Cook is about to get out a new edition of his work. The progress of our industry is so rapid that there is an eager demand for all that is new and useful. If there is any class of people in this world who like to keep up with the times it is the bee-keepers. Box hives and straw skeps please them not. They must have the very latest.

PACKING FOR OUTDOOR WINTERING.

A GOOD many questions are asked by our subscribers as to what kind of packing is best for outdoor wintering. We formerly thought there was nothing equal to good dry wheat chaff. While this is perhaps the best, it is not always available. We have used with equally good results common shavings such as one can get at the planing-mill. Dry forest leaves, if enough of them are used, are also good. Sawdust and clover chaff make a packing material a little heavy, and is liable to become pretty damp in the spring, and too moist for the cluster. The best packing material is that which is loose enough so the air can pass through it, carrying with it the moisture.

A LIGHT YEAR FOR THE SUPPLY-DEALERS.

THE heavy losses last winter, and the almost entire failure of the honey crop in the majority of localities in the United States, will make a very light harvest for the supply manufacturers of the country next season. The winter losses on the one hand, and the inroads of foul brood, pickled brood, and other kinds of diseased brood in some localities, have discouraged many bee-keepers; and, as a consequence, they have either gone out of the business or expect to go out. Where the honey failed, of course the supplies of the previous season are still on hand. We are of the opinion here at the Home of the Honey-bees that the dealer will have to take things a little easy next season.

"THE PROPER PLACE FOR QUEEN-CELLS."

IN the Department of Criticism, in the *Bee-keepers' Review*, I find the following:

> Dr. Miller suspects that having the cells (Doolittle cells) between two combs with young larvæ is an important point. The editor (GLEANINGS, 529) answers that it is quite important. I wish to ask why—that is, why, if the colony is strong enough to rear good queens?

If Mr. Taylor will turn back to page 510 of GLEANINGS he will see that I did not say the colonies in question were strong, but that one of them was a weak seven framer, and the cells were reared in April. Regarding the other, I did not state definitely whether the colony was strong or not; but in the fore part of the article I spoke of the fact that many of our colonies were weak from winter losses. For that reason cell-building needed a little coaxing by putting frames of unsealed larvæ on each side. The object of the larvæ is to draw on a large force of bees, and thus give the cells all the advantages of animal heat in abundance, and a plenty of nurses right on the spot to do the work. That good queens *may* be reared without combs or larvæ on each side is true; but we have learned by experience (and our experience is quite extended) that we get better results from such coaxing, even with "a colony strong enough to rear good queens."

THE WIRE-CAGE PLAN OF INTRODUCING.

THE editor of the *Review*, referring to the method of introducing queens by caging against the side of the comb, and of Mr. Lapsley's failure to make the plan work, as reported in GLEANINGS, emphasizes particularly the point that "the comb selected should be old tough brood-comb, and filled with just-hatching brood instead of sealed honey. If a few of the cells contain unsealed honey, no harm is done—in fact, it seems to be better." There is a right and a wrong way in carrying out any good method; and I have not a doubt, in my own mind, but this, when properly carried out, is one of the most reliable known; although I think we use with equally good results the Benton cage with pasteboard tacked over the candy end, compelling the bees to eat away the pasteboard. This method is much more convenient of application, and is more likely to give better results in the hands of beginners.

HONEY COMMISSION MEN—HILDRETH & SEGELKEN.

AT the Philadelphia convention a good deal was said in regard to the policy of selling honey on commission. Some firms were "hauled over the coals," but I believe none of our late advertisers. One firm in particular was spoken of in the highest terms, and that was Hildreth & Segelken. Mr. Segelken, now the senior member and manager of the concern, has been connected with the honey business for the last eighteen years; and during all this time, so far as I know, he has left a good record—one of which he may well be proud. He commenced with the house of H. K. & F. B. Thurber & Co., then the largest grocery house in the country, taking the humble position of porter in their honey department. When the manager of the department left the house, the firm tendered the position to Mr. Segelken, which position he held for five or six years. He was then with F. G. Strohmeyer & Co. for a year or so; and finally, thinking it was time for him to "hang out his own shingle," as he says, he became a partner in the firm of Hildreth Brothers & Segelken. Although the business was small at first, it continued to grow until the present firm of Hildreth & Segelken are among the largest handlers of honey in the world. Indeed, if I am correct they are the only commission house who make honey their principal business, and on their stationery may be seen the word "Honey" standing out in bold white letters. Mr. Segelken says he noticed in the *Review* and GLEANINGS that he is quoted as saying that the New York market finds no trouble in disposing of 60,000,000 lbs. of honey annually. While he admits that New York is the great honey market of the country, yet he says no such amount could be handled in any one year — not by one firm nor by half a dozen. He says he may have said that 6,000,000 lbs. was the amount, and this would come nearer to the actual amount sold ; but this would include only all domestic honey, not counting the large consignments of foreign honey that come through that port. All told he estimates that the New York market handles from 7,000,000 to 8,000,000 lbs. of honey annually.

It is a little risky to speak favorably of any one commission house or commission man, for, almost as sure as fate, some one, having had some unpleasant deal, will complain that he has not been treated fairly. This world of ours is a big one, and is filled with peculiar people, and I doubt if there is *any* business, to say nothing of commission men, who can please *every* one; and while I realize there are strong temptations in the commission business, yet I am proud to say we have among our honey merchants some clean honorable men, and some who probably purchase as often outright as they take honey on commission. And right here let me emphasize the fact that, when one sells for cash, he must usually expect to take a lower figure than if he lets the honey go on commission ; for when the purchaser buys outright he must buy at the bottom of the market.

THE NEW MALADY IN NEW YORK PROBABLY NOT FOUL BROOD.

SEVERAL days ago I received samples of badly affected brood from Frank Boomhower, who has been inspector for Schoharie County. These were examined in the presence of A. I. Root, Mr. Vernon Burt, Mr. Calvert, and myself. We all agreed that this malady was not the same as the foul brood that we have had here in Ohio. The surface of the combs with the depressed and punctured cells did not have the same appearance, and the dead matter itself was only slightly ropy ; in fact, it was difficult to get it to string out more than ⅛ or ¼ of an inch, while the dead matter arising from *Bacillus alvei* (real foul brood) will draw out four or five inches. When the filament breaks, the two points will fly back to their attachments almost like the two ends of a broken rubber band. While the dead brood sent by Mr. Boomhower has somewhat the odor arising from real *Bacillus alvei*, yet there is a slight difference even in this respect, as I now remember.

It will be remembered that Dr. Howard has examined a specimen of brood that is said to have come from Mr. Boomhower's district ; and he says, after microscopic examination, that it is not the same as ordinary foul brood.

Whether this new malady is more easily handled or is more serious in its nature, remains to be shown ; but from all the evidence I can gather, it is not as virulent nor as destructive as real foul brood, by considerable. Some report that it disappears of itself. Mr. Boomhower, on the other hand, says it is about as bad as it can be, for colonies are dying of it all over his county, and he has found the same trouble within a radius of thirty miles of him. But Capt. J. E. Hetherington, P. H. Elwood, and Inspector West, have called it a pickled brood, because this malady often goes away of itself.

An idea comes to me just now that may help to explain the great divergence of opinion or testimony regarding the different cures for real foul brood, and their value as specifics. For instance, C. F. Muth found that he could very readily handle the foul brood, or what he supposed to be that disease, in his locality, years ago, by spraying the combs with a solution of salicylic acid — a well-known germicide. A great many others reported that salicylic acid and phenol would not only stay the ravages but absolutely cure the disease, and wipe it out from the infected district. But we, on the other hand, with the foul brood that visited our vicinity, found that these various drugs were worse than useless, because, during the time that we were testing these various decoctions, the disease was spreading everywhere, while, if we had gone at it immediately by the starvation plan, we might have cured it at once.

Another fact is interesting to note—that the malady in York State does not yield, or at least has not in some cases yielded, to the McEvoy treatment — a plan that has come to be regarded as an entire success in handling the real foul brood. Practically the same treatment was practiced by us when we had the disease, and that, too, without a failure.

I am sure that we had the real foul brood in Medina, because Prof. Sargent, then of Cornell University, made some very careful microscopic examinations of the dead matter that we had, and he found it was the same thing that Cheshire called *Bacillus alvei*—that is, foul brood. Later on, Thos. W. Cowan, editor of the *British Bee Journal*, examined the matter of foul brood I selected from one of our combs, and he unhesitatingly pronounced it at the time to be real foul brood.

The *morale* of this thing seems to be that there are two kinds of foul brood, so called, in the United States, or at least there have been. The kind that has run through Wisconsin, Northern Ohio, and parts of Canada, is, evidently, not the same thing as that which is troubling the bee-keepers of Eastern New York. Real foul brood is about as bad as it can be ; but we shall hope that the new malady, or an old one under a new name, will readily yield to the drug methods which have been said to be so effectual with what is supposed to be foul brood in some sections of our country. The very fact that the McEvoy treatment fails to effect a cure on the New York disease, in some cases, and that the affected brood has a different appearance, and is only slightly ropy, seems to indicate that it is not the foul brood so familiar to some of us.

The specimens of diseased brood that Mr. F. Boomhower sent us, above referred to, were sent by express to Frank Benton, of the Division of Entomology, Washington, D. C. I have also sent him full particulars, and hope to have a report that will show just what this malady is beyond a doubt. Dr. Howard, having already examined a specimen of the Schoharie brood, it seemed better to send these other specimens to Washington.

OUR HOMES,
BY A. I. ROOT.

There is one God, and one mediator between God and men, the man Christ Jesus.—I. TIM. 2:5.

Our good pastor, Rev. Jesse Hill, recently gave us a touching little story which I wish to use with his permission, and I wish also to give some of my thoughts in connection with it. A father and his grown-up son had difficulty; and it seems to me one of the saddest sights this world can furnish is a quarrel between father and son. Just at the time when the son begins to arrive at the age of manhood, say when he is fifteen or sixteen years old, or just about the age of the boy I talked about in my last Home Paper, if both father and son are not a little careful there is likely to be trouble. It is very natural for the father to fail to take into consideration that a boy of this age is not exactly a boy, or rather, perhaps, he is not *the* boy he has been all along the past. The father will speak to a *small* boy with a tone of authority that he needs to modify a little when the boy gets to be a *large* boy. And the boy on his part is apt to feel a little annoyed if his father does not remember to pay a little respect to him because he is getting to be so nearly the father's equal. And it is quite possible that a boy of sixteen may have been out in the world, and read the books and papers, more than his father of three times his age. Perhaps the boy sees his father is not up to the times ; or if the boy *imagines* the father is not up the times, the state of affairs is still worse. When both father and son are professing Christians—when they are both reading their Bibles, and both day by day kneeling to the great Father of all, then there is little danger of trouble; because any father or son who lets God direct, will seldom have trouble, even in matters of this kind. It is true, many fathers err by being too easy with boys about sixteen years of age. You remember the old priest Eli was called to account because "his sons made themselves vile, and he restrained them not." We do not know how old these sons were, but we do know that the father was held responsible and *accountable* for their bad conduct.

Now, boys and their fathers do not always agree on what is right and what is wrong. Sometimes the father is at fault. Sometimes the son is at fault, and sometimes both are at fault. From my standpoint of view it looks to me that, although boys of sixteen many times have excellent judgment, and may also be better posted than their fathers, notwithstanding this, there are times when a boy of sixteen shows exceedingly *poor* judgment. As I look back at the time in my life when I was sixteen years old, I feel pained and surprised to think I ever had so little sense as to disagree with my father on matters where he was *entirely* right and I was *entirely* wrong. May God forgive me for not being more respectful to my father, even had it been true that I was right and he was wrong. Oh ! what would I give this minute, had I kept back just two or three little words that I uttered while angry? After I grew up I asked his forgiveness, and he freely granted it. But, even though this be true, how I *do* wish I had submitted pleasantly and good-naturedly to what my father thought was right and best !

Well, in the story the father and son had trouble. It grew from bad to worse until the father ordered the boy off from the premises ; and I do not know but he told him never to show his face there again. Oh how it pains me to think of such a scene as this ! The poor mother was somewhere near, I think, and, of course, she did all that a mother could do, and stood, probably, just about half way between the two angry men (or man and boy, if you choose). I can imagine that, for her sake, the boy promised to come back some time; but he said his father would have to send word or arrange for him to come before he did so. Now, why could not that poor father have had just a little grace so that he could keep still and not say any thing more to make this matter still worse; but the father foolishly, prompted by Satan, did add, "Well, sir, if you never come back till I send for you, you will never come at all—you may be sure of that." Things of this kind have happened before, and they may happen again ; but if I could have my way about it there should be no such folly again while the earth stands. Let me give you some of my reasons for it. One of them was suggested by our good pastor in another one of his sermons. The thought is this:

When two men enter into a business partnership, they consider the matter and talk it over. They agree to it; and afterward, if they do not get along well, they can talk it over and dissolve. A business partnership is a man-made arrangement. When a boy and girl at the proper age decide to live together as man and wife, the arrangement is at least partly of their own making. Usually, at least, they both have something to say about the matter. This, too, is a man-made arrangement, or, if you choose, a man-and-woman-made partnership. Well, now, please consider, dear brother and sister, that the *children* born in a home stand on a different basis. God himself sent the boy into the home ; and I am glad to know that the parents, as a rule, unite in thanking God for this great gift. God sends the boy to that father and mother. It is not a partnership, for the *boy*, at least, was never consulted in the matter. God placed him there. He has as much right in the home as the father or mother. That is *my* statement, however. Our pastor did not say so ; and as I look at it neither the father nor mother has any more business to turn the child out of that home than the child has to turn them out. He is part *owner* of the home, and has the *best* right to it of any one, because *God* placed him there. When he grows up and becomes a man, and has a home of his own, of course he freely and voluntarily steps out ; but he never steps out of his mother's love and affection. I wish I could say as much for the father. Now remember, dear parent, your old friend A. I. Root (for whom you have much love, and in whose judgment you have much confidence), says that you have no right, legally or morally, to turn your children *out of doors*. I know there are trying circumstances. I have seen them; but, notwithstanding, your boy ought to be like your hand or your foot. No matter if it is faulty, and troubles you exceedingly, while there is life in it you do not very often think of dispensing with it; and you do not often *quarrel* with a hand or foot, no matter what happens to it. Well, this boy who sometimes tries you is a very part of yourself; and this arrangement of his being a part of yourself is a part of *God's* own making; therefore, if you two can not reconcile your differences, go to God in prayer (the God who sent the boy) and tell him your trouble, and let him guide you. This is *his* arrangement, and he certainly will pilot you safely.

Well, this boy went off. He took care of himself, and did fairly well. Of course, the mother begged and importuned the foolish father to take back his wicked, unfatherly declaration, and invite the boy to come home. But he was stubborn and dogged. Oh! why should a man add folly to folly in thinking it is manly or right in any sense of the word to keep on *year after year*, sticking to something he has said while angry? Years passed on, but the father would not relent, and the boy would not even come to see his mother without his father's invitation. But the mother fell sick. As long as she was able, she begged to see her boy once more. Finally some mutual friend wrote the boy how his mother kept begging for him to come, and suggested that, if he would see her again in this world, he had better come quickly. She was near to death. In fact, perhaps the only thing that kept her alive was the desire to see her boy, and I should not wonder if the poor mother *with* that desire longed to bridge over the trouble that had all these long years existed between father and son. The boy came. Like the prodigal of old, somebody caught sight of him when he was afar off; but it was not the *father*, however. They told him to hasten to his mother's bedside. His father stood on one side of the dying woman while the son came up on the other. She could not speak, but she smiled on him and put out her hand. Then turning to the father, the other hand was extended toward him. Of course, he could not object, and the poor mother then, without a word, placed together the hands of both father and son, and the past was forgotten and——*forgiven*. Her mission on earth was ended. This thing that she had prayed over for years, and the thing that never was accomplished during her *life*, was brought about by her *death*. Perhaps nothing but her death could have softened the hearts of these two stubborn men. I do not know whether they were professing Christians or not; but after this they certainly *should* have been; and then it would be true to say that she gave her life—she *died* that they might *live*.

Now, dear friends, you have no doubt guessed already that this little story (and who shall say it is not a true story?) is a *wonderful* illustration of what the dear Savior has done for a sinful world—nay, bring it home still closer—is it not exactly what he has done for you and me? When nothing but his death could soften our pride and stubborn hearts he *died* that we might live?

A very good friend of mine has, by some unaccountable means—at least unaccountable to me — got an idea in his mind that the New Testament is not to be accepted like the old one. He reads the Bible, and I have been told he has prayers in his family, and yet rejects Christ as the Son of God. I have been for a good while back planning to have a talk with him, and I think I will tell him this story. I wish to tell him that, away back in the foundation of the world, God so loved humanity that he gave his only begotten Son that whosoever believeth in him should not perish but have everlasting life. God's laws, although just and righteous, seem to be hard for sinful humanity to comprehend and live up to without help; therefore he graciously gave this Son—this only Son—to be the mediator, as in the language of our text, to *plead* with humanity; and may it not be, also, to plead with God? to stand *between* us, if you choose, and finally give his life as did that poor mother, that through *his* death *we* may have life?

And this story has suggested to me that the mothers are in one sense the mediators. If we heeded these mothers' tears and mothers' prayers as we should do, what a different world this might be!

And now, dear friends, if this little talk should lead to a better and kinder relation between any father and the young boys who are just getting to be men, it will gladden my heart to know it; and still more will it gladden my heart if this story may make plainer to any one this story of "Jesus and his love." And let me say to the boys, too, that, whenever any of them are tempted to take the name of Jesus in a careless way, and in vain, may the thoughts of that dear dying mother, and the idea that it suggests of the office and *mission* that Jesus made to this world of sin—may this thought have the effect of checking the tendency to foolish and careless profanity!

NOTES OF TRAVEL

BY A. I. ROOT.

On page 550, July 15, I spoke about exploring a cave in the vicinity of Flat Rock, Seneca Co., Ohio; but my travels broke off right then and there, and I now wish to take them up again.

After my nice dinner and nap I hunted up the locality of the cave. Out in the middle of a field, or at least quite a little distance from the fence, there is a little building of rough boards. When the guide with the keys and two lanterns approached this building to unlock the door I said:

"Why, is it possible that this cave is right here on smooth, almost level, ground, without any rocks or hills or any thing to indicate any thing of the kind?"

While he was fitting the key to the lock he replied, "Well, we shall see," and we did see. Right in front of the door was an opening. It looked something like a well, and some stairs went down into this well. It was a very dry time in July, and the weather was exceedingly warm. The draft of cold air that came out of the well seemed quite refreshing. Around the edges the ground was muddy. The guide remarked there would not be any mud a little way down, and so it proved. Now, I knew just what made that wet muddy place around the entrance. In a large cavern in Missouri, during hot days the moisture from the air would be precipitated on the roof of the cavern until it trickled down and filled tubs that the women used for washing, so I was told. This water is soft, of course — in fact, it is *distilled* water. Air at, say, 70 to 80 degrees, contains a large quantity of moisture that it can not possibly hold when cooled down to about 50 or 60. Most caves are about 50—sometimes a little lower. Well, this cave at Flat Rock has only one opening, if I am correct; therefore to get ventilation a stream of warm air goes down along the highest part of the cave, and a stream of colder air runs out of the cave along the floor on the lower side. Now, as this hot air goes down it drops this moisture near the entrance along the rocks overhead. This moisture drips from the rock at the sides and overhead, so as to make it muddy. It is said this cave was discovered by a boy who went to dig out a rabbit out in the field. He chased the animal into a hole, and in digging down a little he found the rabbit away off under the rock. By digging the hole a little larger he found *he* could get in also. This was a good many years ago. Since then, curious people have at different times explored the cave further and further. I followed my guide down the stairway. Sure enough, as we got down further the ground became dryer as the air became cooler. The first stairway was, perhaps, 20 feet long. When we turned on a little landing and started to go down another stairway I uttered an exclamation of surprise. But we went down three such stairways before we came to the bottom; and then we twisted around here and there, down hill and up hill, until I lost all the points of the compass, and should have been lost in the labyrinths had I been without a guide.

At one point there is a large cavern with an arched or vaulted roof big enough to hold several hundred people; in fact, I was told that addresses have been made from the high rock, fragments of the smaller rock furnishing seats for the audience. Most of the way you can walk upright quite easily, and the path is very good; but there are some passages where none but a small person can possibly squeeze through; and I believe there is a considerable part of it that has never yet been explored. It is a limestone cavern, and remarkably dry everywhere. The guide said he had been told there was a place in one of the lowest chambers where a small boy could get down to where they found water; but as he was a rather large man he had not seen it himself. This cave, like many others of this kind, was evidently produced by something giving way underneath; then the rocks tumbled down to fill this cavity. While in Missouri I noted several "drops" of this kind, where great holes were left; but in this case it seems the caving-in never extended clear to the surface of the ground, but so near to it, however, that the rabbit in its burrow "caught on" to the very highest part of the cavern.

"Why, you people around here must have to go down a tremendous way to get drinking-water. How deep is the well that I saw right beside your house as we came down?"

"My well is 180 feet deep. Some of the neighbors have had to go still deeper to get water. It is supposed that this cavern or series of caverns underdrains this whole region, for we have little or no trouble with surface water. There are no streams of any account near here. All surface water very soon gets down into these caverns and is gone."

Our older readers will remember my account of the wonderful springs at Castalia, O. Well, there is said to be an underground river in Seneca Co., and well-drillers have satisfied themselves that its course is toward the Castalia springs. In fact, I am told that a quantity of chaff, emptied into one of these caverns, in the course of a few days came up out of one of the largest of the Castalia springs, the ground being considerably higher here than at Castalia. All the sewage from round about Bellevue goes down into these caverns; and it occurs to me that in the course of time this way of doing may endanger the well water in that vicinity, and perhaps also spoil that beautiful spring away off in Castalia.

As I emerged from the cave and took my wheel again it was with a strange feeling that, when we travel over the surface of the earth, little do we know what is underneath us. At one point in clambering up and down the cave the guide said if I was not in a hurry we might hear some strange noises. So we sat down on a rock and waited awhile. Pretty soon we heard a low rumbling. It came nearer and nearer, and then began to diminish, and finally gave place to the intense silence that always seems to strike one in any of these underground caverns. He explained that this point in the cave was pretty near the top of the ground, and right under the roadway where there was considerable travel. In the middle of the day visitors may usually hear vehicles passing overhead, without waiting very long.

Toward night I brought up at Tiffin, the county-seat of Seneca Co., where, I was told, there was an electric line running to Fostoria, 12 miles. As I had ridden almost enough for one day I concluded to take the electric cars providing they would carry my wheel for me.

"Oh! yes," said my informant; "they will carry your wheel or any thing else you want carried. Why, they are so accommodating they will even carry a *hog-trough*. I know, because they carried one for me, without a bit of objection."

I found what the man said was true, and all of the employees of the road seemed glad to get people to travel with them, and really seemed to enjoy doing any favor they could for any passenger. I wish that all electric carlines would take a hint.

There was just time enough before the car started, to get a lunch if I did so quick; but to get it I was obliged to go into a beer-saloon. There was not any other place (so people said), especially in the neighborhood of where the cars start. I wonder if there is a *providence* in obliging me to visit saloons so often. Perhaps so; for when anybody tells me I know nothing about the saloon business I can very readily prove he is mistaken. The food was well served, and money enough had been spent on the surroundings to make the place not only decent but *elegant;* but the foul talk of the customers and proprietor was—well, just about what you might expect when you go into any place where liquors are sold.

I received a very pleasant welcome from my nephew, Mr. George M. Gray, as well as from his pretty little flock of juveniles. Mr. Gray is an up-to-date fancy printer. He employs a lot of hands, both men and women; makes use of electricity, modern machinery, has his own engravers, and takes delight not only in keeping up with the times but in showing his patrons what has been accomplished in recent times in the way of ornamental printing.

At Fostoria Mr. Gray took me through an up-with-the-times flour-mill. It has the latest and most modern machinery throughout, and is large enough so they can, if necessary, make 2000 barrels of the best flour in the world in a single day. I can not take time here to describe it; but just imagine a flour-mill without dust — yes, and go still further and imagine a *miller* without dusty clothes and cap. In this new mill the machinery is all so perfectly inclosed that scarcely a particle of dust ever gets out into the room. In fact, most of the rooms look more like parlors than apartments in a grist-mill. All the various operations of cleaning the grain and making it into flour are in full sight of the miller, but it is all covered with large lights of glass. One miller or one attendant looks after a whole roomful of mills. Perhaps there are forty or fifty on one floor, all doing the same thing. Modern mill machinery is so perfect that the miller has almost nothing to do. He carried a duster in his hand, and occasionally wiped off the machinery and the large panes of glass; but the entire establishment was about as free from dust as the average parlor or sitting-room. All the handling of the grain and flour is accomplished so perfectly with automatic machinery that there does not seem to be any *hard* work about it. The wheat is cleaned from dust and impurities mostly before it goes into the mill at all. Immense elevators for storing grain are of steel so they can not get afire. A beautiful Corliss engine moves all the machinery. The Fostoria *Times* calls it "the greatest and finest winter-wheat milling-plant in the world." It is owned by The Isaac Harter Co.

We next visited a great factory built expressly for manufacturing electric or incandescent globes. I think toward one hundred men and women are employed in this institution. It is called the Fostoria Incandescent Lamp Co. We first saw the workmen (and women) making the coiled filament that gives the light. This is then attached to the wires that connect the current, which is a complicated operation. It passes on from one department to another until it is ready to be put inside of the glass globes. Then we see some fancy glasswork done, and pretty soon a large room shows us the air-pumps at work exhausting the air. This is done by means of columns of quicksilver, in a very ingenious way. Then comes a nice series of machinery for testing bulbs in order to determine the "volts" and a lot of other things I do not suppose I could *ever* understand, even if it is true that electricity has been more or less a hobby of mine all my life. There were dark-rooms and light-rooms. The bulbs are tested this way and that. There are dry batteries and storage batteries, and dynamos and motors, and tests that go into the science of optics deeper than I knew that any one had ever delved. In fact, there are so many processes and so much complicated and intricate machinery used in order to produce a really first-class electric-light bulb that it seemed to me a dollar apiece would hardly pay the cost of all these manipulations; and yet we are offered these bulbs now by the quantity at only 15 to 18 cts. apiece, and each one is warranted to burn 1000 hours. There are so many companies at work making them, that, after they have made a sale, they write to consumers, begging them to report any one that is faulty, or send back any that play out before the 1000 hours. Yes, and they also urge you to try samples of their product, free of charge. In fact, this establishment begged permission to send samples of their latest production, express charges paid. All they asked was that we would put them beside those we were then using, and see how they would compare with other makes. What an industry has grown up within a few years! And are we each and all remembering to give God the praise that our homes and our towns and cities are now so well lighted, that, even during the darkest night, we are almost forgetting there is such a thing as darkness to enable wicked men to do their deeds? And, O dear friends, let us see to it that *spiritual light* is shed abroad over our land to keep pace with the beautiful electric lights that do so much toward banishing the bad man who loves darkness rather than light because his deeds are evil.

ROBBING BEE KEEPERS.

I WISH to mention a little circumstance that just occurred, omitting names for obvious reasons. A man sent a check to one of our queen-breeders for some queens. The check looked all right, and of course the queens were promptly forwarded; but when the check was presented it transpired that the sender had no money in the bank, and, in fact, was bankrupt, having made an assignment something like a year previous. After we had written the delinquent a couple of pretty sharp letters he went around among his relatives and got the money and paid for the queens. The queen-breeder was so gratified that he promptly sent us half of the money for making the collection. I have just returned his check, however, telling him that collecting accounts *for pay* is not our business, and that we could not accept pay for any such work. We consider it our place, and it should be the province of every bee journal to prevent bee-keepers from being robbed; and if the party who has been helped feels grateful, let him speak a good word for the journal that helped him, and help extend its circulation. Another point: We wish to have it thoroughly understood that any person, say like Luptom or the party described above, will surely get taken in hand by the bee-journals, and thoroughly shown up, just as soon as he undertakes any such swindle. It is our business to protect bee-men, and to show up the swindling advertisements. The agricultural journals, in a like manner, should protect their readers, and so on.

SPECIAL NOTICES BY BUSINESS MANAGER

NEW PRICES IN BEESWAX.

While there is not much change in the general market price of wax, yet there is a slightly upward tendency, and we offer, till further notice, 25 cts. cash, 27 cts. in trade, for average wax delivered here. We do not anticipate that prices will rule any higher than this till next spring, if at all. The upward tendency in prices of almost all commodities has not affected beeswax. The explanation for this is, no doubt, in the heavy winter losses last spring.

REVISED PRICES FOR 1900.

For the convenience of those interested in the value of bee keepers' supplies for 1900, we have brought together in the following list the new prices of all goods where it has been found necessary to change prices since the catalogs of 1899 were issued. Goods not mentioned in this list remain unchanged in price.

DOV'D-HIVE PARTS AND COMPLETE HIVES.—Page 8.

See catalog for explanation of letters and figures. Add —8 to No., as noted below.	Nailed & painted.	EIGHT FRAME. KD in flat. 1	5	10	25	Weight of 10.
AE5 —8 hive	1 30	1 05	4 50	8 50	20 00	190
AE6 —8 hive	1 40	1 15	4 75	9 00	21 25	195
AE52P, or S, or I—8 hive	1 75	1 40	6 25	11 50	26 25	260
AE64P, or S, or I—8 hive	2 10	1 65	7 25	13 50	31 25	280
AE522P, or S, or I—8 hive	2 20	1 75	8 00	14 50	32 50	320
AE644P, or S, or I—8 hive	2 80	2 15	9 75	18 00	41 25	350
AE55—8 hive	2 05	1 65	7 25	13 50	31 25	320
AE66—8 hive	2 25	1 85	7 75	14 50	33 75	330
AE58—8 hive	1 75	1 40	6 25	11 50	26 25	270
AE69—8 hive	1 95	1 60	6 75	12 50	28 75	280
A or B bottom or floor	25	20	80	1 50	3 50	40
C, D, F, or G cover	30	25	1 10	2 00	4 50	40
Empty body	45	35	1 50	2 80	6 50	80
5 body	75	60	2 75	5 00	12 00	130
6 body	85	70	3 00	5 50	13 25	135
Shallow super	25	17	75	1 40	3 25	40
2P, or S or I super	45	35	1 75	3 00	6 50	65
3P, or S, or I super	60	45	2 25	4 00	8 75	75
4P, or S, or I super	70	50	2 50	4 50	10 00	75
Deep super	25	18	80	1 50	3 50	50
8 super	45	35	1 75	3 00	6 50	80
9 super	55	40	2 00	3 50	7 75	85
Hive stand	15	10	50	1 00	2 25	40

		TEN FRAME.				
AE5—10	1 45	1 15	5 00	9 50	22 50	220
AE6—10 hive	1 55	1 25	5 25	10 00	23 75	225
AE52P, or S, or I—10 hive	1 95	1 55	7 00	13 00	30 00	300
AE64P, or S, or I—10 hive	2 30	1 85	8 00	15 00	35 00	320
AE522P, or S, or I—10 hive	2 45	1 95	9 00	16 50	37 50	380
AE644P, or S, or I—10 hive	3 05	2 45	1075	20 00	46 25	420
AE55—10 hive	2 25	1 80	8 00	15 00	35 00	360
AE66—10 hive	2 45	2 00	8 50	16 00	37 50	370
AE58—10 hive	1 95	1 55	7 00	13 00	30 00	310
AE69—10 hive	2 15	1 75	7 50	14 00	32 50	320
A or B bottom	30	22	90	1 70	4 00	45
C, D. F, or G cover	35	28	1 25	2 30	5 25	45
Empty body	50	40	1 70	3 00	7 00	90
5 body	80	65	3 00	5 50	13 25	150
6 body	90	75	3 25	6 00	14 50	155
Shallow super	30	20	85	1 50	3 50	45
2P, or S, or I super	50	40	2 00	3 50	7 50	80
3P, or S, or I super	65	55	2 50	4 50	10 00	95
4P, or S, or I super	75	60	2 75	5 00	11 25	100
Deep super	30	21	90	1 60	3 75	50
8 super	50	40	2 00	3 50	7 50	85
9 super	60	50	2 25	4 00	8 75	90
Hive stand	15	10	50	1 00	2 25	40

DOVETAILED CHAFF HIVES AND PARTS.—Page 9.

Designating letter or figure. For explanation, see catalog.	Nailed and painted	Eight-frame. In flat. 1	5	10	25	Wt. 10
YW5 hive	2.40	1.90	8.75	16.50	38.25	360
YW52P, or S, or I hive	2.85	2.25	10.50	19.50	44.75	420
YW64P, or S, or I hive	3.20	2.50	11.50	21.50	49.50	440
Y telescope cover, 7-inch	.50	.40	1.80	3.40	7.50	90
X deep teles. cover, 11-inch	.60	.50	2.30	4.40	10.00	110
Chaff-tray	.20	.15	.70	1.20	2.50	30
Super-cover	.10	.10	.50	.90	2.00	10
W chaff-hive body	1.30	1.00	4.50	8.80	21.25	200
W5 chaff-hive body with frs	1.60	1.25	5.75	11.00	26.25	330
W6 same with frs. & starts.	1.70	1.35	6.00	11.50	27.50	235
Z winter-case body	.50	.35	1.70	3.20	7.50	70
YZ winter-case complete	1.00	.75	3.50	6.60	15.00	160

DANZENBAKER HIVES. NAME AND DESCRIPTION	Paint'd Nailed	KD in flat. 1	5	10	25	Wt. 10
Danz. 5 hive	1 40	1 10	4 75	9 00	21 25	200
Danz. 5-2-M. hive	2 10	1 70	7 50	14 00	32 50	300
Danz. 6-4-M. hive	2 50	2 00	8 50	16 00	37 50	330
D. 5 body with frames	75	60	2 75	5 00	12 00	120
D. 6 body, frames, starters	85	70	3 00	5 50	13 25	125
D. 2-M. super, no sections	70	60	2 75	5 00	11 25	120
D. 3-M. super and sections	85	75	3 25	6 00	13 75	120
D. 4-M. sup., sect., & start.	1 00	80	3 50	6 50	15 00	120
Danz. sample hive			5 00	9 00	22 50	210
Danz. 3-M. sample super			4 25	8 00	18 50	150

DANZENBAKER FRAMES.	In flat, per 100,	per 500.
Danz. closed-end frames, 7½x17	$2.00	$9.00
Danz. section-holders, 5⅜x17	1.80	8.00

BROOD-FRAMES.—Page 11. Name.	Put up 100	In flat 10	100	500	Wt. of 100
Hoffman frames, end-spaced	3 00	25	2 10	9 00	35 lbs.
Thick-top staple-spaced frs	2 50	20	1 80	8 00	35 lbs.
All-wood frames	2 00	17	1 50	6 50	25 lbs.
Shallow ext.-frames (5⅜-in.)	2 00	17	1 50	6 50	22 lbs.

Pierced, and wire included, 10c per 100 extra.

TINNED WIRE.—Page 11. Sizes furnished.	Price each	doz.	Post. each.
¾-oz. spools No. 30 tinned wire	$ 03	$ 30	02
¼-lb. spools No. 30 tinned wire	12	1 20	06
½-lb. spools No. 30 tinned wire	20	2 10	10
1-lb. spools No. 30 tinned wire	30	3 30	18
5-lb. coils No. 30 tinned wire	1 00		

DIVISION-BOARDS.—Page 11.	Pr. of 1	—10	Wt. of 10
Chaff division-board, complete	$ 25	$2 20	20 lbs.
Chaff division-b'd, flat, no chaff	13	1 10	13 lbs.
Plain division-board, nailed	10	90	10 lbs.
Plain division-board, flat	08	60	9 lbs.

SECTIONS.—4¼×4¼×1½ to 2 inches.—Page 12.

	No. 1.	No. 2.		No. 1.	No. 2
Per 100,	$ 50	$ 40	1000	$3 50	$3 00
Per 250,	1 00	85	3000	9 75	8 25
Per 500,	1 75	1 50	5000	15 75	13 25

DOVETAILED T SUPERS. Name and Description.	Nailed each	In flat. 1	5	10	Wt. of 10.
Dov. T supers with tins only	30	.25	1 25	2 00	40 lbs
Dov. T super complete except sections and starters	45	.35	1 75	3 00	50 lbs
Dov. T. super complete.......	70	.50	2 50	4 50	70 lbs

SECTION-HOLDERS, SEPARATORS, AND SLATS.—Page 13.	Price of 100	500	Wt. of 100
Slotted section-holders, 1⅞x18⅛ outside	1 50	6 00	35 lbs
Slotted section-slats, ¼x1⅞x18⅛...........	75	3 00	15 lbs
Plain section-holders, 1½x17½ outside...	1 20	5 00	20 lbs
Ideal plain slats, ¼x1½x18⅛..................	75	3 00	18 lbs
L plain slats, ⅜x1⅜x12.........................	50	2 00	10 lbs
Slotted sawed separators, 4½x18⅛.........	80	3 50	8 lbs
Plain sawed separators 3¾x17 to 20........	50	2 25	6 lbs
Slat separators..	1 00	4 50	10 lbs
I, P, S, T, and L fences	1 35	6 00	11 lbs
M fences...	1 50	7 00	13 lbs

PRICE LIST OF NOVICE EXTRACTORS.—Page 16.

In ordering odd-sized extractors, give outside dimensions of frame and length of top-bar.

No. 4.—For all frames 13 inches or less in depth and 13¾ inches or less in width (wt. 50 lbs.)......$8 00

No. 5.—For L. or Simp. frame standing on end, or any other frame not over 9½ in. deep, or 18¾ long, top-bar 20 in. (wt. 45 lbs.)........................... 8 00

No. 7.—For frames deeper than the L., but not over 11¾ in. deep (wt. 60 lbs.)............................ 9 00

No. 10.—For still deeper frames not over 13¾ in. deep, or 18½ wide (wt. 60 lbs.)........................... 9 00

Any above numbers with milk-can handles, 25c extra.
" " " " 60 lbs. space below, 50c "
" " " " 100 " " " $1.00 "

COWAN EXTRACTORS.—Page 17.

No. 15.—2-frame Cowan for L. frames; comb-pockets, 9⅝ in.; diam. of can, 20 in. (wt. 70 lbs.) $11 00

No. 17.—2-frame Cowan, for frames not over 11 inches deep, 22 in. in diameter (wt. 90 lbs.)....... 12 00

No. 18.—2-frame Cowan, for frames not over 12 in. deep, 24 in. in diameter (wt. 120 lbs.)........... 13 00

No. 20.—2-frame Cowan, for frames requiring larger than 24-inch can................ .... 16 00

No. 25.—4-frame Cowan for L. frames, 28 in. in diameter (wt. 150 lbs.)... 20 00

No. 30.—6-frame Cowan for L. frames, 31 inches in diameter (wt. 180 lbs.)..................................... 26 00

BEVEL GEARING.—Page 17.

Bevel gearing, including cross-arm and steel center shaft, complete, for 17-inch can (wt. 6 lbs.)...$1 50
Bevel gearing for 20-inch can (wt. 11 lbs.)............ 1 75

Kitchen knife, 15c each; postage 5c.
Dadant uncapping-can, $8.00; weight 50 lbs.
Doolittle wax-extractor, $3.60; weight 30 lbs.
Boardman " with glass, $7.50; wt.,110 lbs.
" " without glass, $5 00.
Root zinc strips, 1 row holes, ¾x18 to 19⅛, per 100, $1.10.
Tinker zinc strips, 2 rows holes, 1³⁄₁₆x18 to 20, 100, $1.50.
Root zinc sheets, 28x96 inches, each $1.60.
Tinker zinc sheets, 24x40 inches, each 80c.
Cut pieces of Root zinc, 12c a ft.; Tinker zinc, 15c a ft.
Entrance-guards, Tinker zinc, $1.00 for 10.
Entrance-guards, Root zinc, 75c for 10.

SHIPPING-CASES. Page 23. NAME AND SIZE OF CASE.	Nailed, each.	Price complete including 3-inch glass 1 side, nails, & paper, in flat. 1	10	100	With 2-inch glass instead of 3, per 100.	Without the glass per 100.	Wt. per 100—in lbs.
12-in. 4-row for 4¼ s'n	20	18	1 70	$15 00	$13 50	$12 00	450
10-in. 4-row "	20	18	1 60	14 00	12 50	11 00	400
12-in. 2-row "	15	12	1 10	9 00	8 25	7 50	225
10-in. 2-row "	15	12	1 00	8 50	7 75	7 00	200
16-in. 2 row "	16	13	1 20	10 00	9 25	8 50	300
8-in. 3-row "	15	13	1 20	9 50	8 50	7 50	225
6½-in. 3-row "	15	12	1 10	9 00	8 00	7 00	200
7⅜-in. 4-row for 4x5...	20	18	1 70	14 00		11 00	300
7⅜ in. 3-row " ...	16	13	1 20	10 25		8 50	250
9½-in. 4-row for 3⅝x5	20	17	1 60	13 10		11 00	350
6⅜-in. 3-row "	15	13	1 20	9 25		7 50	200

GLASS FOR SHIPPING-CASES. Page 23.	Price. 10	100	Bx. of 50 ft. No.	Price.
3x17¾ or 18 for 4-row cases.........	35	$3 00	133	$3 75
3x13¼ for 3-row cases	25	2 00	171	3 25
3x9 for 2-row cases	20	1 50	267	3 25
2x17¾ or 18 for 4-row cases.........	20	1 50	200	3 00
2x13 or 13¼ for 3-row cases.........	12	1 00	256	2 50
2x9 for 2-row cases	10	75	400	2 50
3x16½ or 17 for 4-row 4x5 cases...	35	3 00	140	3 75
3x15 for 4-row 3⅝x5 cases	25	2 10	160	3 25
3x12½ or 11½ for 3-row 3⅝x5 cases	20	1 75	200	3 25

No.	HONEY-BOARDS.—Page 19. Name and Size.	Price of 10.	Weight of 10.
R 1	10-frame unbound zinc, 14x19⅛.....	$1 60	9 lbs.
T 1	10-frame unbound zinc, 14x19⅛......	2 20	9 lbs.
R11	8-frame unbound zinc, 12x19⅛.......	1 40	8 lbs.
T11	8-frame unbound zinc 12x19⅛......	2 00	8 lbs.
T 9	8-frame wood-zinc, 13⅞x20...........	2 20	13 lbs.
T10	10-frame wood-zinc, 16x20..............	2 40	14 lbs.
R12	10-frame wood-bound zinc, 16x20...	2 00	11 lbs.
T12	10-frame wood-bound zinc, 16x20...	2 40	11 lbs.
R13	8-frame wood-bound zinc, 13⅞x20	1 80	10 lbs.
T13	8-frame wood-bound zinc, 13⅞x20	2 20	10 lbs.

Manum's swarm-catcher, with pole, $1.25.
" " without pole, 90c.

STURWOLD'S SHOW-CASE.—Page 24.

Price, plain $5 00
Same, with your name and address................. 5 50
Same in flat, no glass or finish 2 50

EASTERN SQUARE JARS.—Page 24.

5-oz., 2 gr. in a pkg., $3.00 per gross, corks included.
8-oz., " 4.50 " "
1-lb., 1 gr. " 5.70 " "
2-lb., 9 doz. " 7.50 " "

MUTH SQUARE JARS.

5-oz., 1 gr. in a pkg., $3.25 per gross, corks included.
8-oz., " 4.40 " "
1-lb., 6 doz. " 5.70 " "
2-lb., " " 7.50 " "

POUDER SQUARE JARS.

5-oz., 100 in a pkg., $2.25 per 100, corks included.
8-oz., " 3.00 " "
1-lb., " 4.00 " "

MASON FRUIT-JARS.

Pint Mason jars, 47c doz.; 6 doz., $2.70; 12 doz., $5.25.
Quart " 50c " " 2.85; " 5.50.
½-gal. " 65c " " 3.60; " 7.00.

NO. 25 JARS.

2 dozen in a box, $1.25 per box; 6 boxes, $7.00.
12 dozen in a barrel, $6.00 per barrel.

SQUARE CANS.—Page 25.

No. in a box.	Capacity of each can in gallons,	in honey.	Price of 1 box.	10 bxs.	Wt. of 1 box.
1	5-gal. can boxed	60 lbs.	$ 50	$ 4 60	10 lbs.
2	5-gal. "	60 "	85	8 00	15 "
10	1-gal. "	12 "	1 60	15 00	20 "
12	½-gal. "	6 "	1 60	15 00	20 "
24	¼-gal. "	3 "	2 60	25 00	25 "
100	1-gal. "	12 "	13 00	120 00	110 "
100	½-gal. "	6 "	11 00	100 00	80 "
100	¼-gal. "	3 "	9 00	80 00	60 "

SCREW CAPS.	1	10	100	Wt. of 10.
1½-inch screw caps................	2	15	$1 25	5 oz.
3 -inch screw caps................	4	35	3 00	14 oz.
3¾-inch screw caps................	5	40	3 50	18 oz.

RAISED-COVER PAILS.

Size in Quarts.	Size in lbs.	Price of 1	10	50	100	Weight of 100.
½-quart R. C. pail......	1½	4	$ 38	$ 1 80	$ 3 40	55 lbs.
1 " "	2½	5	48	2 25	4 20	75 "
2 " "	6	7	65	3 00	5 50	120 "
3 " "	9	10	90	4 00	7 50	130 "
4 " "	12	13	1 20	5 00	9 50	150 "
½ and 1 qt. nested.....		9	85	3 90	7 50	100 "
½, 1, and 2 qt. nested		15	1 40	6 50	12 50	170 "
½ to 4 qt. nested.........		35	3 00	14 00	28 00	320 "

TIGHT-SEAL COVER PAIL.—Page 25.

	Capacity, lard	— honey.	Price 1	10	100	Wt. 100
No. 1 seal-cover pail.....	1 lb.	1½ lbs.	8	75	7 00	45
No. 2 “	2 lbs.	3 “	9	85	8 00	60
No. 3 “	3 “	4½ “	11	1 00	9 50	70
No. 5 “	5 “	7½ “	13	1 20	11 00	90
No. 10 “	10 “	15 “	18	1 60	15 50	140
Improved Dadant pail..	5 “	7½ “	10	90	8 50	

FLAT-HEAD WIRE NAILS.—Page 27.

Cement-coated, except first three.

L'gth.	Wire Gauge	No. in 1 lb.	Wt. of 5c pkg.	Price of 1 lb.	10 lbs.	100 lbs.
¼ in.	No. 21	17,500	1 oz.	.45	$4.00	$37.50
⅜ “	“ 20	10,000	2 oz.	.30	2.80	25.00
½ “	“ 20	7,500	2 oz.	.25	2.30	21.00
⅝ “	“ 19	4,200	2 oz.	.20	1.80	16.00
¾ “	“ 18	2,700	4 oz.	.16	1.40	12.50
⅞ “	“ 18	2,350	4 oz.	.15	1.30	11.00
1 “	“ 18	2,000	4 oz.	.14	1.20	10.50
1¼ “	“ 17	1,200	4 oz.	.13	1.10	9.50

STANDARD (D) WIRE NAILS.—Page 27.

All cement-coated.

Style.	Length.	Wire Gauge.	No. Nails in 1 lb.	Price of 1	10	Keg.
2*d* fine.	1 in.	No. 17	1440	10	85	$6 45
3*d* “	1⅛ “	“ 16	1000	9	80	6 15
4*d* box.	1½ “	“ 15½	550	9	75	5 80
5*d* “	1¾ “	“ 14½	366	9	75	5 65
6*d* “	2 “	“ 13	250	8	70	5 45
7*d* “	2¼ “	“ 13	236	8	70	5 45
8*d* “	2½ “	“ 12	157	8	70	5 30
9*d* “	2¾ “	“ 12	130	8	70	5 30
10*d* “	3 “	“ 11	107	7	65	5 20
4*d* casing.	1½ “	“ 15	550	9	75	5 80
6*d* “	2 “	“ 13	250	8	70	5 45
8*d* “	2½ “	“ 12	157	8	70	5 30
3*d* common.	1¼ “	“ 15	615	8	70	5 75
4*d* “	1½ “	“ 13	322	8	70	5 45
5*d* “	1¾ “	“ 12½	254	8	70	5 45
6*d* “	2 “	“ 12	200	7	65	5 30
7*d* “	2¼ “	“ 11½	154	7	65	5 30
8–9*d* “	2½ “	“ 10½	106	7	65	5 15
10*d* “	3 “	“ 9½	74	7	60	5 05
16*d* “	3½ “	“ 8	46	7	60	5 05
20*d* “	4 “	“ 6	29	7	60	5 00

TINNED TACKS. Name and size.	Wt. of 5-ct. pkg.	No. in 5-ct. pkg.	No. in 1 lb.	Price of 12 pk.	Price of 1 lb.
2 oz. tinned Swedes, ¼ inch	1 oz.	250	4000	30	35
3 “ “ “ ⅜ “	1½ “	250	2650	35	25
6 “ “ “ ½ “	3 “	250	1333	45	20
8 “ “ “ ⅝ “	4 “	250	1000	50	15
½-in. blued carpet, oval top	4 “	250	1000	50	15

FLAT-HEAD STEEL WOOD-SCREWS.

Length	No	Price	Length	No	Price	Length	No	Price
⅝	3	15c	1 in.	5	20c	1¼ in.	10	29c
⅝	6	17c	1 “	6	21c	1½ “	8	29c
⅝	8	20c	1 “	7	22c	1½ “	10	31c
¾	4	15c	1 “	8	24c	1¾ “	10	36c
¾	7	20c	1 “	9	25c	2 “	11	41c
¾	8	21c	1 “	10	28c	2¼ “	11	45c
⅞	6	19c	1¼ “	9	28c	2½ “	12	55c

Double-pointed tacks, 25c per lb.; 10 lbs., $2.20.
Wire-cloth staples, 25c per lb.
Crate-staples, 20c per lb.
End-space staples, 20c per lb.

PRICE LIST OF FEEDERS.—Page 28.

	Price of 1	10	Weight of 10.
Simplicity feeder	5	40	3 lbs.
Gray's covered feeder........................	15	1 40	8 lbs.
Boardman feeder, 2-qt., complete ...	25	2 00	20 lbs.
Boardman feeder, in the flat, with-without jar but with special cap...	15	1 25	11 lbs.
Special caps only, for either Mason or Lightning jars	10	75	1 lb.
Pepper-box feeder, 1 pint................	8	70	4 lbs.
Pepper-box feeder, 1 quart..............	10	90	6 lbs.
Miller's feeder, nailed up................	25	2 30	40 lbs.
Miller's feeder, in flat	20	1 80	40 lbs.

Wire cloth, 2c per sq. ft.; full rolls, 1¾c; post., 1c ft.

FOUNDATION-MILLS.

14-in. mill	(boxed	115 lbs.),	$42.00;	dipping-tank,	$2.50
12-in. mill	“	95 “	36.00;	“	2.50
10-in. mill	“	65 “	25.00;	“	2.00
6-in. mill	“	45 “	20.00;	“	2.00

UTAH COMB AND EXTRACTED HONEY.

The carload of honey mentioned in our last issue has arrived. It comes from Ogden, Utah, is gathered from alfalfa and sweet clover, and is very fine flavor, and choice white in color. The comb is all in cases of 24 sections each, averaging about 22 lbs. net weight. The honey is so thick and heavy that, even if the comb were broken, there would be very little leaking. The cases are without drip-sticks or glass Much of the honey was built without separators, and a few sections are bulged some beyond the wood, and should be handled carefully to avoid mashing the comb. Aside from the disadvantages mentioned the honey is exceedingly fine in appearance and flavor, and will easily grade fancy white. Price $3 75 per case, or 17 cts. per lb.; 10-case lots and upward, 16 cts. per lb. The extracted is very light color, and fine flavor; is in 60 lb. cans, and candied solid. Price 10 cts. per lb. by the case of two cans. Net weight 110 to 120 lbs. per case. If you prefer to have it melted or liquefied before shipping please so request when ordering. Sample mailed free to prospective customers.

PREMIUM OFFERS.

We make this our annual premium number, and print thirty thousand copies. The extra copies over and above our regular paid subscription-list, which now numbers about ten thousand, we send to a select list of our customers. We make this number 16 pages larger than usual, in order to present some views of our factory, which will be of interest to all, as well as to show some improvements in supplies for next season. In this respect it will serve somewhat as an advance announcement, inasmuch as we incorporate also the revised price lists on supplies for next season wherever it has been found necessary to change them from prices ruling this past season. We want, also, to call your attention to the attractive premium offers. Every bee-keeper who keeps a dozen hives of bees or more should have a bee-journal. He can not afford to be without one. He may find in one issue a hint that will be worth more to him than the cost of the journal for ten years. Many have had just this experience. If you don't care to try it for a year, send 15 cents for three months' trial, and have it to read during the long winter evenings. You will be well repaid. If any one does not find his money's worth we will gladly refund it. If at all interested in a good fountain pen we know you will be greatly pleased with the "Post." It is simply perfect. and the opportunity to get one on such reasonable terms will not be likely to come again. The owners take this means of introducing and advertising it; and when it becomes well known and introduced they will sell it only through agents at $3.00 each.

If not interested in this we offer other premiums equally attractive, rewarding you well for a little effort extended in behalf of GLEANINGS to increase its circulation. At the present rate of increase we ought to reach 12,000 circulation by the first of January, 1900; and if every one receiving this number takes an interest and lends a helping hand we could easily double that.

Wanted.—Buckwheat extracted honey.

On page 866 we tell how to get two papers for the price of one.

A. I. Root's Special Notices — matter on gardening, etc., is crowded out of this issue, but will appear in the next.

SAY! Did you know the **Western Bee-keeper** has changed hands? C. H. Gordon is now editor and publisher. . . . .

Wanted! Every bee-keeper, large or small, to send 15c for 4 mos. trial. Sample copy free. .

47 Good Block, : Denver, Colorado.

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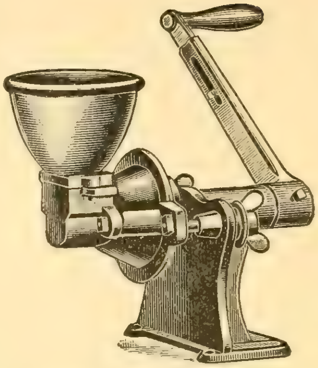
For $1.30.—Gleanings and National Stockman.
For $1.50.—Gleanings and Cosmopolitan or McClure's Magazine or American Garden.
For $2.00.—Gleanings and Country Gentleman.
For $2.50.—Gleanings and Review of Reviews.



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In writing, mention Gleanings.

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Pouder's Honey-jars, and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.
W. S. Pouder, 512 Mass. Av., Indianapolis, Ind.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must SAY you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange a John Deere sub-soil plow, good as new, low price, for honey. Also some high-scoring white Plymouth Rock and Indian game cockerels for honey or offers.
A. W. CARSON, 113 W. 4th St., Joplin, Mo.

WANTED.—For cash, one second-hand gasoline-engine, 1½ to 3 horse power; one foot-power mortiser, second hand, and one foot-power scroll-saw, second-hand. E. W. SMITH, Plain City, Ohio.

WANTED.—To exchange two 60-lb. cans of pure alfalfa honey for two cans of pure linwood (basswood) honey. L. H. GREENE, Berthoud, Colo.

WANTED.—Nuclei and full colonies of bees, for delivery in April; South preferred. Will furnish nuclei boxes. I. J. STRINGHAM, 105 Park Pl., N. Y.

WANTED.—To sell or exchange 8000 plants of the Darling strawberry, at 35c per hundred, postage paid. H. FITZ HART, Dalkeith, Fla.

WANTED.—A Given foundation-press. If you have one to sell, write—giving condition, size of dies, and price—to G. A. CRESSY, Hilbert, Wis.

WANTED.—To exchange one 13-in. foundation-mill, Van Dervor make, in good condition, for beeswax or offers. Address B, Box 25, Gallupville, N. Y.

For Only Two Dollars!

Several times during the past season, when sending in orders for queens of the superior stock that I have been selling, have bee-keepers mentioned that, in the past, they had bought queens of the various breeders, and found the bees from —— (mentioning the breeder who furnishes this stock that I am selling) away ahead of the others, but "I want the best, so I am going to try yours. If they are ahead of ——'s they have got to be pretty good." More than one order has ended in *exactly* these words. There is no doubt *whatever* that this is really an *unusually superior strain of bees.* Ever since I brought this strain of bees into notice by my persistent advertising, the demand has been greater than the supply—nearly the whole season I was from three to six weeks behind with orders. A *large number* have written me that they will order queens another season, and some are *already* sending in their orders. If you wish for as good bees as there are in this country, and want them next spring in time to get the most good out of them that year, I would suggest that you send me your order this fall. All orders are booked the day that they are received, and will be filled *strictly in rotation.* The price of a queen alone is $1.50, but I have a most tempting offer to make in connection with a subscription to the Review. Send me $2.00, and I will send you twelve back numbers of the Review (for particulars in regard to these back numbers see my ad in the last issue of Gleanings), the Review for the rest of this year, for all of 1900, and next spring I will send you one of these queens from which you can rear bees that, in all probability, will be far ahead of the stock that you now possess. If you have not read my advertisements that appeared in Gleanings the past summer, and wish to know more about the qualities of these bees, and the conditions under which the queens are sold, drop me a postal, and I will send a copy of a circular that I sent out in the summer, which will give all particulars. If not acquainted with the Review, send 10 cts., and three late but different issues will be sent; and the 10 cts. may apply on a subscription if you decide to send one in.

Remember, twelve back numbers, the Review the rest of this year, all of next year, and a queen from stock that is the equal, if not the superior, of any in America.

W. Z. Hutchinson, : : Flint, Michigan.

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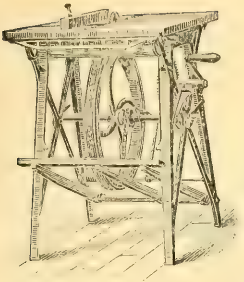

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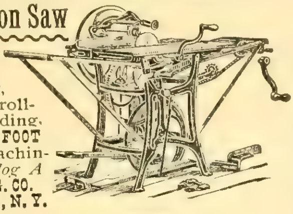

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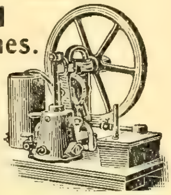

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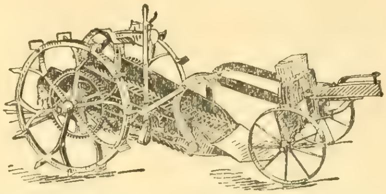

It is time in most places to be digging potatoes; and, in fact, in most places it is past time. If you want something that will put the potatoes *all* on top of the ground, and do it, too, with one good strong team, you probably can not do any better than to use the Dowden potato-digger, made by the Dowden Mfg. Co., Prairie City, Iowa. Drop them a postal card, and they will cheerfully give you all the particulars, answering every question anybody will probably ask in regard to the machine. Mr. A. I. Root, of The A. I. Root Co., is using one with excellent satisfaction in digging his crop of potatoes grown expressly for seed.

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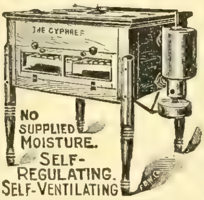
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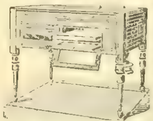

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would be an improvement on the old way, but WE can't do it. We CAN furnish an **INCUBATOR that will hatch** all hatchable eggs, and do it with less attention than any machine made. It does it because it is made right and has all late improvements. Sold at a low price and guaranteed. **Catalogue in 5 languages, 6 cts.**

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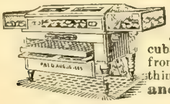

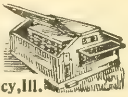

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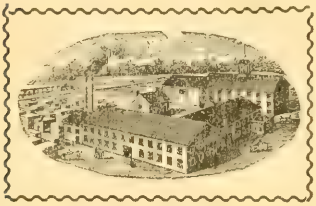

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PATENTED 1878, 1882 and 1892
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T. F. BINGHAM, Farwell, Michigan.

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Honey Column.

CITY MARKETS.

New York.—Our market never was in better condition for the sale of either comb or extracted honey. The causes for this are, very light stocks of either here, and, so far, the demand has been more active than in previous years, probably partially caused by the general report of a short crop. We always claim that sales made before the holidays are larger than those made afterward, as well as more profitable. Honey is selling to-day as follows: Comb honey, white, fancy, 15@16; No. 1, 14@15; No. 2, 12@13; amber, fancy, 12@13; No. 1, 11@12; mixed, fancy, 12@13; No. 1, 10@11; buckwheat, fancy, 11@12; No. 1, 9@10. Extracted, California white, 8¾; light amber, 8¼; white clover and basswood, 8½; amber, 8. We are asking 7 to 7½ for buckwheat, but little trade doing. Florida and other grades of southern, 7@8¼, according to quality. Beeswax very quiet at 26½@27½.

Francis H. Leggett & Co.,
Franklin, West Broadway, and Varick Sts.,
Nov. 21. New York City.

Buffalo.—The following is the market for honey: Fancy, 15@16; A No. 1, 14@15; No. 1, 13@13½; No. 2, 11@12; No. 3, 10@11; fancy dark, 11½@12; good dark, 10@11; extracted white, 8@8½; dark, 7@8. Beeswax, 29@30, and demand good.

W. C. Townsend,
Nov. 22. Buffalo, N. Y.

New York.—The demand for both comb and extracted honey is good. Fancy white comb, scarce. The supply for off color and buckwheat is plentiful, enough to meet all demands. We are quoting as follows: Fancy white, clover, 1-lb. comb, 16; A No. 1, 15; No. 1, 14; No. 2, 12@12½; No. 3, 10½@11½; fancy buckwheat, 11@11½; No. 1, 10@10½; No. 2, 9@10; mixed, 9@11. Extracted, white clover, 8; light amber, 7½; buckwheat, 6@7. Beeswax, demand limited, 26@27.

Chas. Israel & Bro.,
Nov. 20. Cor. Canal and Watts Sts., New York.

Albany.—Honey market about all cleaned up, and could sell more to good advantage. White, No. 1, 15@16; mixed dark and amber, 11@14. Extracted, white, 8@9; mixed, 7@7½; dark, 6@6½. Beeswax, 25@27.

McDougal & Co.,
Successors to Chas. McCulloch & Co.,
Nov. 20. Albany, N. Y.

Chicago.—A quiet slow market prevails, with prices unchanged. We find best grade of white comb sells at 15, with a fancy article at 16, in a small way; dark and amber, 9@12. Extracted, white, 7@8; amber to dark, 6@7.

R. A. Burnett & Co.,
Nov. 20. 163 S. Water St., Chicago, Ill.

Philadelphia.—Honey is moving freely, but arriving freely. Lots being held back are now coming in, market very bare of very fancy lots. We quote fancy, 16; No. 1, 14; buckwheat, 11. Extracted, 6@8. Beeswax, 25. We are producers of honey—do not handle on commission.

Wm. A. Selser,
Nov. 22. 10 Vine St., Philadelphia, Pa.

Kansas City.—We quote fancy white comb, 15; No. 1, 14; No. 2, 13; No. 1 amber, 13½. Extracted, white, 7½@8; amber, 7@7½; dark, 5@5½. Beeswax, 22@25.

C. C. Clemons & Co.,
Nov. 22. Kansas City, Mo.

Milwaukee.—This market presents no new features of particular interest regarding honey. The trade has dragged somewhat for some time past, and the stock is fair. We think the disposition on the part of the producers and shippers to speculate on the sweet has not been met favorably by the consumers, and the more general use has been curtailed. We, however, continue to quote fancy 1-lb. sections, white, 15@16; A No. 1, 14@15; No. 2, 13@14; best choice amber, 14@15. extracted white, in bbls., kegs, and pails, 8½@9; amber, in same, 7½@8. Beeswax, 25@26.

Nov. 22. A. V. Bishop & Co., Milwaukee, Wis.

Boston.—Our market continues in splendid condition. While the supply is light, yet, owing to the high prices, it seems to be quite equal to the demand. Later on, when the trade realizes the shortage more thoroughly, the demand undoubtedly will be much better. We quote our market as follows: Fancy white, 16; A No. 1, 15; No. 1, 13@14. Buckwheat will not sell in this city. Extracted light amber, 7@8. We advise shipments to be sent forward at once.

Blake, Scott & Lee,
Nov. 17. 57 Chatham St., Boston, Mass.

Columbus.—Fancy white comb, 16@17; fancy amber, 13@14; No. 1 amber, 11@12; dark, 10. We are in the market for all grades, either on consignment or direct purchase.

Evans & Turner,
Nov. 25. Fourth and Town Sts., Columbus, O.

Schenectady.—Receipts of comb honey are very small, demand good. We sold one lot of fair quality clover at 15, and one lot of buckwheat at 11, during the week. Extracted quiet with no change in prices.

Nov. 20. C. McCulloch, Schenectady, N. Y.

Wanted.—Extracted honey of all kinds. Mail sample, and price expected delivered at Cincinnati. I pay spot cash on delivery.

C. H. W. Weber,
Successor to Chas. F. Muth & Son,
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I. J. Stringham, 105 Park Pl., New York.

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Blake, Scott & Lee,
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Wanted.—Your honey. We will buy it, no matter where you are. Address, giving description and price.

Thos. C. Stanley & Son, Fairfield, Ill.

Wanted.—Comb and extracted honey. State price, kind, and quantity.

R. A. Burnett & Co.,
163 South Water St., Chicago, Ill.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO

VOL. XXVII. DEC. 1, 1899. NO. 23.

STRAY STRAWS FROM DR C. C. MILLER

THAT FACE on p. 832 has an honest look; pity to see that pipe sticking in it. A. I. might offer the owner a smoker!

TILIA PETIOLARIS is a new linden about which much is said nowadays in the *British Bee Journal*. It is later than other lindens, prolonging the season two weeks.

A PICTURE of Wm. H. Horstmann's apiary in *American Bee Journal* shows a new feature—beauty and utility combined. The shade-boards are held on the hives by pots of blooming plants. Nice for a city yard.

IN MAKING INCREASE, the first item given, p. 829, is to buy in March a strong colony in a box hive for a dollar. If I could get that far in the plan, I think I shouldn't want to go any farther; all increase would be by further purchases.

S. SIMMINS, editor of *Bee Chat*, is very positive that no queen ever lives over winter a virgin, to be fertilized in the spring. Editor Atchley is positive that such a thing often occurs. Possibly both are right A winter in England is different from a Texas winter of only two months.

SLOWLY UPWARD goes the price of honey. [Yes, but bee-keepers must not make a serious mistake and hold their honey until after the holidays. The probabilities are that it will take a slight drop — at least it has always done so, and I see no reason why it should not do so this year.—ED.]

BINNI thinks his sections safe from worms till doomsday when screwed down (p. 828), because he thinks worms are found only in sections that have in them pollen or brood. I don't know about Australia, but in this country I've seen many a worm on sections entirely innocent of pollen or brood.

IN GRAVENHORST'S *Bienenzeitung* it is suggested that, when cross-breeding is supposed to bring good results, it may be that the gain is only on account of bringing in fresh blood, and that the gain would be more permanent if fresh blood were introduced without the crossing.

DON'T THINK for a minute that I ever meant to argue that the Doolittle plan was not better than simply unqueening to rear queens. With the latter plan bees left to themselves will rear as good a queen as the best, and destroy some not so good. With the Doolittle plan, all—or at least more nearly all—will be good.

WHAT is association worth? The answer of a milk-producers' association is: "It is worth 3½ cts. per gallon. We were getting 6½ cts., and now we are getting 10 cents. We were scattered, and they told us what they would give; we became united, and then we told them what our reasonable demands were, and obtained them." It doesn't seem as if association could raise the price of honey 50 per cent; but it isn't easy to show why milk and honey should be so very different. Come on with your dollar, and get into the A. B. K. A.

YOU'VE DONE a good thing in using half-tones to show new supplies. It is a delight to look at such beautiful pictures. [If you could have experimented with Rob and me in trying all the different effects of light and shade, background, etc., you would appreciate the pictures all the more. We took a number of "shots," but discarded them all until we struck a plan whereby we can get brilliant effects. The beauty of a half-tone in any case from a photo is that it shows the real thing itself, without exaggeration. That is the reason why half-tones of buildings and factories must necessarily be truthful.—ED.]

IT'S MURRAY, and not Doolittle, I'm going gunning for now. In that middle picture, p. 837, he makes me hold the hammer in my left hand! Doolittle never did any thing half so bad as that. [Yes, I imagine that Doolittle will turn that gun which he stole from you on Murray also, for he (Murray) has made our Borodino friend hold out his left hand for a "shake." By the by, it is a little funny that you should employ a colored footman to bring in an announcing-card, and yet you yourself be employed in the menial labor of nailing up hives. Murray ought to have made you sitting before a desk with a pen over your ear, dictating at a 40-mile clip to a pretty stenographer.—ED.]

I FELT SWINDLED after looking through those seven pages of pictures, beginning at page 140. Beautiful pictures, to be sure, but I had a right to look for folks, and not a folk to be seen. Say, you didn't take those pictures on Sunday? Now give us some pictures of the folks. [Whom do you mean by "folks"? If you mean the employees, they are inside running the machines. If you mean the members of the Root Co., we hardly know whether we ought to show ourselves in our own journal or not. Perhaps some day we may show four generations of Roots, the oldest of whom is over 87, and the youngest a little over eight years.—ED.]

AFTER SOME DISCUSSION it seems agreed in *Revue Internationale* that, instead of having extracting combs cleaned up by the bees before being put away, they should be left as they come from the extractor, there being no trouble from mold or souring, the bees being more prompt to occupy them the next season. Will the esteemed editor, M. Bertrand, please tell us whether honey in such combs will not granulate sooner than in combs thoroughly cleaned out? [In most localities of the North, that would be just the trouble. Perhaps Coggshall or some of the other extracted-honey men will tell us why they let the bees lick the combs dry before putting them away for winter.—ED.]

WHEN WORMS are found on sections of honey that are sealed up tight immediately upon being taken from the hive, it is said the bees carried the eggs there on their feet. Does that look reasonable? Are the eggs in places where the feet would touch them? Would they stick to the feet? Pull the head off a moth, and almost immediately it begins to feel around with its ovipositor for an angle or a crack, not laying till it finds one. Are not the little worms on the sections first found at an angle? Considering what an artful dodger the moth is, how swift in its movements, and how constantly trying to get into a hive, is it not more reasonable to suppose that it has dodged its way through the hive and made its way into the super?

A BRIGHT IMPROVEMENT is that arrangement by which no water can get through the cracks of the cover unless it runs up hill. Now if the cover will not warp out of level, and if you can get rid of that objectionable projection below the general surface at the ends, tin may not be needed in a cover. There are some bee-keepers who will never be willingly driven to have a cover whose lower surface is not entirely level throughout. [Yes, I believe the new form of cover is better than any thing that has been hitherto brought out, and we can even eliminate the bottom projections under the cleats by using angle irons instead of cleats. This will be making the cover a little more expensive, but really I prefer to have the cleats, for myself, stick downward.—ED.]

IT IS REFRESHING to have people talk definitely and specifically, as does N. D. West, p. 828. A toothpick will draw out the dead brood ½ to ¾ of an inch, but it will not break and spring back like rubber (in the New York disease). Now tell us just how far it will string out before it breaks in genuine foul brood, and how much more slowly than rubber it springs back. [If you are asking me the question, I think I have seen filaments from foul brood all of 2 inches long, and perhaps in some cases 3 inches. When it breaks it flies back almost like a rubber band; but the diseased matter from so-called foul brood in New York is only very slightly ropy — at least the samples that have been sent here, which I have examined, do not show filaments any thing like those which can be made from the real foul brood.—ED.]

A FOUL BROOD CURE is thus reported by the editor of *Bee Chat:* A badly diseased colony was taken from its stand, a clean hive with frames of foundation put in its place, the queen and a frame of healthy sealed brood given, and the returning bees built it up into a good colony which remained healthy. The old stock had no laying queen for three weeks, and had only young bees, and these cleaned up every thing so there was no more disease. But the colony in the first place was not badly depopulated with disease, the time was favorable for swarming and storing, no bees were shaken from the combs, and *only young bees* left in the old hive. N. D. West's views, p. 828, coincide with these closely. [There is no reason why it should not work, as it is almost what is called the starvation plan of cure.—ED.]

EDITOR SIMMINS is somewhat radical if not revolutionary in his views on foul brood. He says a bee flying from a foul-broody colony never carries the disease to another colony, except under the conditions of natural swarming (filled with honey?). (It may be remarked in passing that this agrees with Baldridge's plan of cure). Mr. S. made two colonies exchange places *without smoking or frightening the bees.* One was not strong but healthy, the other strong and badly diseased. The weaker colony received most of the workers of the other colony, but remained healthy. [I feel very positive that Editor Simmins is wrong; for every colony facing in the same direction, and adjacent to another colony having foul brood, is sure to have this disease sooner or later, for the simple reason that young bees get mixed up more or less at the entrances, and go into the wrong hive. The transmission of the disease in this way occurred over and over again at our apiary outside of the swarming season; and if I am positive of any thing, I am positive that the disease *is* carried by the bees from one hive to another, whether the honey-sacs are full or not.—ED.]

SOMEWHAT STARTLING it is to find M. Bouvier, editor *Revue Universelle d'Apiculture*, making a strong plea for glucose as food for bees. They take greedily pure glucose (?) but he advises half glucose and half sugar syrup. Each evening, for a month, he fed to each of 26 colonies half a pound of the mixture, and they flourished under the diet. He considers glucose more nearly like the natural food of the bee than sugar which is crystallizable. Are we to reconsider feeding glucose? [A good deal will depend on the grade of glucose used. The ordinary commercial article—that which is used in adulterating honey — is pretty rank stuff; and while it would be possible, no doubt, to get the bees to take it when mixed half and half with sugar syrup, it would be a gross imposition on them. The ordinary stuff in this country will be almost sure to winter-kill the bees. Any editor of a bee-paper in this country, who would advocate such a doctrine—feeding glucose, even for the purpose of giving it as a feed and nothing else —would subject himself to some pretty strong criticism. I venture the assertion that, if Mr. Bouvier will keep careful account of the cost of the feeding of this mixture, he will find that, dollar for dollar, the sugar syrup, pure and simple, will be just as cheap as the adulterated stuff; that is to say, I mean that sugar syrup for bees has, for the same money, as much real food value for bees as any other substitute or mixture costing less. In the same way, it does not pay to feed cheap sorghum syrup or any other cheap molasses in place of granulated-sugar syrup.—ED.]

PICKINGS
FROM OUR NEIGHBORS' FIELDS.
BY "STENOG."

December! let's now all remember
The work of the fast-going year;
While snow is a-falling and cold is appalling
We'll get for our labors great cheer.

* * *

On page 834, just below the middle of the page, occurs "Comb *e*, given July 3." It should be, "given July 4." And first column, 24th line from the bottom, should be "Comb *d* has its first cell," not "Comb *b*."

* * *

Mr. Walter T. Swingle, agricultural explorer for the U. S. Department of Agriculture, has, according to the San Francisco *Examiner*, obtained in Siberia a new variety of alfalfa which is capable of sustaining a severe drouth. Some of this has been sent to Paso Robles, where it was grown on soil where no other alfalfa would grow. Owing to this being one of California's most important green feeds, Swingle thought its introduction into the State promised great benefits.

BEE-KEEPERS' REVIEW.

Mr. Hutchinson visited a large number of bee-keepers in Wisconsin last summer, and, with two exceptions, they winter in cellars or special repositories. He gives a beautiful full-page view of one of these cellars. It shows a large mound of earth in the woods, with an opening in the front like a door in an old-fashioned log house. The illustrated feature of the *Review* is almost overshadowing the rest of the journal. Mr. Hutchinson is a fine photographer, and finds his highest joy in pointing his camera. Keep it up, Mr. H.

Dr. Mason favors a shorter spelling, but adds: "If I were to try this new-fangld way I'm sure I'd make a failur of it." He calls it "od." But that spells *oad*. He means *ahd*. On page 335 I see *Trifolium incarnature*. Is that the new way for *incarnatum?*

* * *

Mr. Taylor objects somewhat to the way in which GLEANINGS compared the new-process foundation with the old. He says:

> In an article, with illustrations, taken from the *Canadian Bee Journal*, GLEANINGS, 712, attempts a comparison of the readiness with which bees work the new-process and the old-process foundations. The illustrations are somewhat confusing. The labels they contain are abundant, but are made out with some difficulty by poor eyes; then each of the three illustrations is put upon the page according to a somewhat different plan; and in one case either the label or the explanatory figure below is erroneous. But the chief defect lies in the experiment itself. The "ordinary" foundation with which the comparison is made has no pedigree whatever. The maker is not disclosed; and we have no knowledge of his skill or success in the manufacture of foundation. The new-process foundation may be decidedly preferable to any other made, but it would be ridiculous to claim that the experiment develops any proof of it.

As to the quality of old foundation used, our friends in Canada will have to say as to that; but doubtless it was as good as could be had. The incredulity expressed reminds me of the Congressman who admitted that a certain lot of sheep were sheared on the *near* side, but not necessarily on the other.

AMERICAN BEE JOURNAL.

Under date of Nov. 4 Mr. W. A. Pryal, of San Francisco, Cal., in writing to Mr. York, says:

> "Recently I embraced the opportunity to make a friendly call upon Mr. Thomas G. Newman, and I was surprised to find that he can see with difficulty. He volunteered the statement that his eyesight is getting so bad that he is almost blind. He attributes it to nervousness — he having head-troubles very much. I should say that in this latter affliction he is not altogether unlike father Langstroth. I am very sorry for Mr. Newman's misfortune, and I trust he will soon recover his sight. He states that he hopes to take a vacation soon, and spend some time in the mountains recuperating."

Such an affliction, the worst to which mankind is subject, certainly calls forth our warmest sympathies.

THE AUSTRALASIAN BEE-KEEPER.

The prevailing question in Australia is how to supply the markets of England with honey. One man sent a small lot of comb honey to London with a quantity of extracted in bottles. The comb honey sold at 17 cents per section of one pound, which they regard as a good price, while the honey in bottles was ruined by the fragments of broken glass.

* * *

At a meeting of the Hunter's River Bee-keepers' Association it was resolved to get a consignment of 50 to 100 tons of honey for direct shipment to England. It was the opinion of the members that it was useless sending the honey to agents, and take what they thought fit to return for it, but to send home a competent and interested man to sell to the best advantage, and to arrange for future consignments.

* * *

Mr. W. H. Hall says that in his apiary, when the maize (corn) crops and the red bloodwood are in bloom at the same time, certain stocks can be relied on to fill their hives with the pale, mild, sweet maize honey, and others with the rich yellow glutinous honey of the bloodwood ; and in this case it is remarkable that even the wax secreted by the bees after eating the two types of honey will be different. The new comb wax from the colony working on maize will be pure white, and crumbly to the touch ; while the wax in the hive working on bloodwood will be a bright yellow, and tougher in texture.

* * *

BRITISH BEE JOURNAL.

On page 390, Oct. 5, the theory was advanced that bees do not naturally build a cell six-sided, but that the shape is due to the crystallizing of the wax when it becomes cool. Mr. Cowan replies, and shows up the other fallacy of that idea. His strong point is that bees could not endure a temperature high enough to admit of crystallization. Mr. Cowan seems to admit, however, that the form of a cell is due to outside interference, as all circles coming together naturally assume a hexagonal form. Mr. Cowan's closing paragraph is as follows : "In one respect the experiments of Messrs. Dawson and Woodhead are interesting to the bee-keeper, inasmuch as they demonstrate that, however faint may be the hexagonal impression upon the plate of wax, the bees are willing and ready to accept it as a guide for the commencement of their cells. We might also incidentally point out that even the hexagonal shape is not necessary, as bees will readily accept simple circular pits in wax sheets if they are the right distance apart, and will construct their combs upon them."

GENERAL CORRESPONDENCE

HONEY-DEW.

Something about a New Kind.

BY F. GREINER.

About a week ago it looked very much as though our bees would go into winter very light in honey, and that we should have to do some feeding ; but, curious as it may seem at this time of the year, I find myself giving my bees this 1st of September more room in shape of extracting-combs, and adding half-stories filled with wired foundation. We are having a great flow from honey-dew, and I thought it was a good opportunity to get a lot of foundation drawn out into combs—an opportunity I did not find in all the now nearly past season. As honey-dew honey is not fit for table use it would not be advisable to have it stored in sections ; so I have taken nearly all the section supers off, and intend to keep the bees busy as stated.

This is the second time in over 25 years that we here have an abundance of honey-dew, appearing principally on the chestnut-trees, and our bees are now not slow gathering it, especially early in the morning. While writing this it is not quite light yet ; but the bees are already fairly roaring over it, reminding one of the times when we had a good basswood-honey flow. There are great numbers of aphides on the twigs and leaves of the chestnut-trees, and, according to the authorities, they are the producers of the saccharine matter.

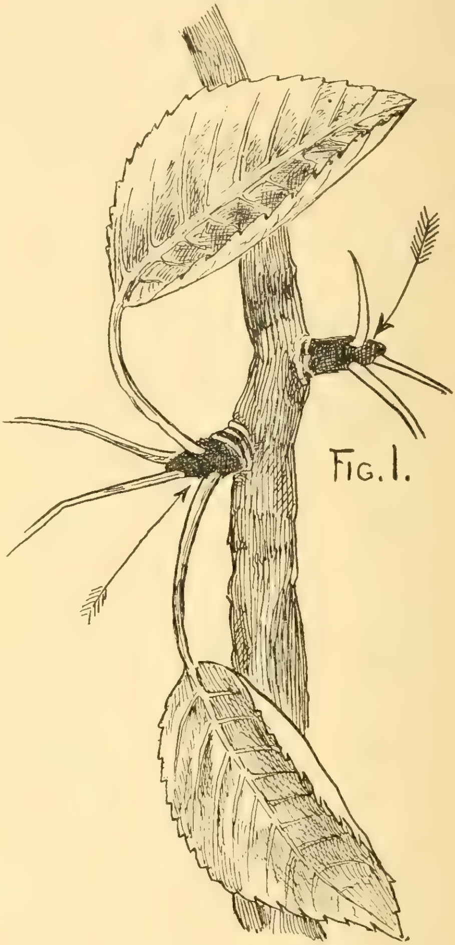


FIG. 1.

There is also honey-dew to be found on pear-trees, and in considerable quantities, which, to my taste, is of better quality than the other, although our bees do not work on it as briskly as they do on the other, for some unexplainable reason, and much of it goes to waste.

While I believe the aphides are the origin of the honey-dew on the chestnut, oak, and hickory, it would seem to me that, in case of the pear-trees, it must be of a different nature. In the first-named case the leaves of the trees, and sometimes the blades of grass and the stones under them also, appear to be varnished all over with the sticky substance; in the other case the honey-dew is found most plentifully where the stems of the leaves join the stock, as shown in my drawing, Fig. 1, and indicated by the points of the arrows.

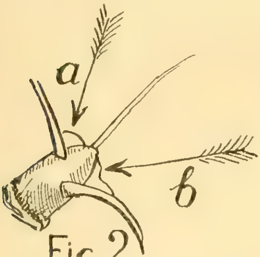


Fig. 2.

After all, if this kind of honey-dew were an exudation of the plant or tree it would stand out in regular drops, convex at the points of exudation, as indicated in Fig. 2 *a*, but in reality we find it as in *b*. Single drops, all flattened out, of course, may also be seen on the leaves here and there. Aphides are absent—at least I did not discover any while picking my Bartletts. However, there are some other little insects present, yet not in such countless numbers as we see the plant-lice. They actually wallow in the sweet fluid. Aphides never do this. I attempt to give a picture of two of the insects as found on a leaf, considerably magnified in Fig. 3. The dotted line around one of them indicates the splash or flattened drop of honey on the leaf. What the little fellow, hardly a sixteenth of an inch long, is doing, or what he is there for, I do not know. I wish some bug-professor (I should say entomologist) would enlighten me.

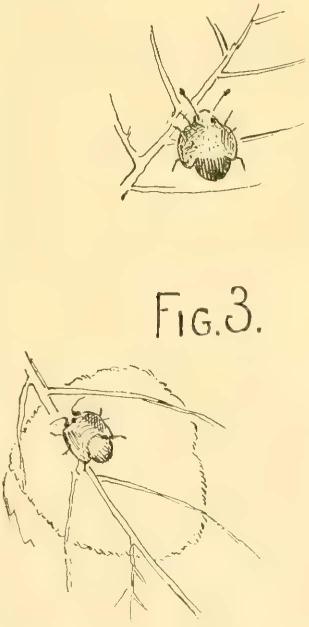


Fig. 3.

Honey-dew is rather unreliable winter food for bees, to judge from experience. Colonies provisioned with such are not in good condition to be taken into cellars, unless they are taken out several times during the winter, and given flights, and then the result might be questionable.

Should the winter turn out to be a mild one, or should there be a number of warm days or spells at intervals of three or four weeks, every thing will probably work well with outdoor-wintered stock, for I do believe that, aside from the food question, our bees will be in excellent condition. They will start into winter with many young bees, breeding having been kept up to a later date than usual.

But we do not know, and have no means of knowing, what the coming winter may have in store for us; and to speculate on an uncommonly favorable time would be too hazardous, to say the least. Of course, it will involve a great deal of labor and expense to put our bees on a safer basis for wintering; but I believe it will be wise to make the effort. The larger part of my bees will be "fixed up." Fortunately a large share of my colonies are each in two half-story brood-chambers, and with them it will not be so difficult to improve their condition. As soon as our honey-dew flow ceases, and the largest part of the brood has hatched from the combs, I contemplate removing all the upper half-stories. They contain most of the honey, the lower half-stories almost none. That will give me a good opportunity then to give my bees good wholesome food in the shape of granulated-sugar syrup, of which a sufficient quantity will be fed at once. It may become necessary to place an extra empty brood-chamber under each hive to give enough room. A full colony will winter on the eight half-story frames just as well in the cellar as though they had more comb surface to cluster on; and the heavy combs taken from them will keep better in the honey-house than they would in the cellar. When the colonies are returned to their summer stands in the spring, each may then receive the same half-story full of honey that was taken from them, and so the stored bug-juice can be made to answer the most excellent purpose of growing us the bees for the white-honey harvest if it should come.

How I shall treat the colonies that are on full-sized frames I have not quite decided upon, but I shall probably remove some of the heaviest combs and feed syrup. I entertain the hope that by feeding late, after the brood has hatched, the bees will store the syrup most convenient for them, and will also consume it first. If they will do that, then there will be a good reason to expect that they will come out in spring all right.

The winter following the honey-dew year (it must be some seven or eight years ago) was a very open one, giving our bees many opportunities to fly. All our outdoor-wintered colonies came through in the very best condition. Those of the cellar-wintered, that were set out in February, were all right; those brought out later were proportionately worse off, as they had been kept longer in the cellar.

From these facts the reader can draw the lesson, for I am sure the honey-dew of this year is of the same character as that of the other year spoken of, and will, no doubt, act on the bees the same way.

Naples, N. Y., Sept. 1.

[I hope Prof. Cook, if he sees this, will tell us about this new kind of honey-dew—the kind Mr. Greiner finds on the pear-trees. Prof. Cook is our best authority on honey-dew in the United States, and possibly in the world, and I know we shall await with interest his comment on this.—Ed.]

A HIVE OF BEES AS A SCHOOLROOM TEXT-BOOK.

Some of the Interesting Lessons that may be Learned; the Piping and Quahking of Queens; do Bees Sleep? how to Make a Little Observatory Hive without a Box.

BY PROF. C. F. HODGE.

Stop and think for a moment what the world really is, and for what purpose we are in it. At bottom, nature is a vast system of tremendous forces at work night and day; and from the word go, in the first chapter of Genesis, man has been set the delightful, interesting, and inspiring task of learning to control all these forces to produce the greatest possible good for the greatest number. Stop and think again how much of the veritable reality of this great plan of nature, and how much of the fundamental purpose of human life, becomes an actual part of our great public-school system. We scoff at "book larnin'," and clearly recognize that learning to repeat words from books can never make men who are able to do any thing worth while in the world. Then stop and think once more: "How much besides book learning do we have in our schools?"

Our great hope of escape from this bookish talkey-talkey farce of an education lies in the line of modern nature study. Here we may have children learning things instead of words, and things that are worth their while. But, to the point. Let us first consider ways of managing bees in a schoolroom, and then we may indicate a few of the important lessons which they may be used to teach.

I have tried the ordinary observation hives, both single-frame and full-stand, such as are used at fairs and exhibitions, and also a honey-section covered with a glass box, and a glass hive specially made for the purpose, which I will describe later.

For an entire season I had a honey-section hive in my study-window, and the whole time it was the most fascinating thing in the room. It was made from an ordinary pound section by driving brads into the corners, letting them stick out half an inch at the bottom for it to stand on, and ¼ inch from the sides and top to insure a bee-space all around. The glass case that fitted over it was made simply by cutting glass the proper size, gluing the corners together with narrow strips of cotton cloth, and carefully searing hot beeswax into the corners on the inside to prevent the moisture of the bees from softening the glue. To stock it I put in a handful of bees with an old queen which I wished to supersede. She laid the little hive full of eggs, and then decamped. The bees immediately set to work making queen-cells; and, happening to be cutting out a lot, I put in two large queen-cells—one of them, with malice aforethought, protected with screen wire.

The queen from the unprotected cell emerged first, and then I had the whole story of "piping" and "quahking" where every movement could be easily observed. At noon of the second day after piping began, the hive cast a swarm, which clustered about the size of a spool of thread, in the snowball bush in front of the window. I hived it back, removing the offending quahker, and the young queen stayed, and laid, and kept up the hive until cold weather. I saw her take her nuptial flight. She was gone about ten minutes, and returned with the organs of the drone. Within fifteen minutes after the bees had removed these she flew again, and in five minutes returned with a second trophy of success. Almost any day I could see a little bee emerge and make its first toilet—a most fascinating performance, and at all times I could observe the bringing-in and disposal of honey and pollen. I painted bees with different colors, and watched them work from daylight to dark—that is, I watched them from daylight to dark; but no single bee that I watched ever worked more than three and a half hours a day. Then there were all the different divisions of labor—the field-bees, the nurse-bees, the wax-producers, the police, the barbers, the drones, and the queen.

I mention all these things to show how many interesting points in the natural history of the hive can be intelligently observed and studied in so small a device—an old honey-section, a handful of bees, a discarded queen-cell, and a few scraps of broken glass, all of which need not cost a penny. And I will guarantee that it will be worth more to a roomful of children than $10.00 worth of books about natural history; but, of course, we need some books as well. And with all that has been written, not half the whole story of the hive has ever been told.

The next season I had in my window the little hive again, and a hive made to take one of my regular frames. The glass case for this was made in the same way, except that the front glass was left out; i. e., the sides, top, and back were glass, fastened together with glue and narrow strips of cloth. This fitted into grooves cut in the bottom-board and in front into the front board, an upright post very securely fastened to the bottom-board. The entrance-hole was made in the bottom of this front board. Sharpened wire nails with the heads cut off, and filed to a sharp edge driven into the bottom and front boards held the single frame securely in position independently of any support from the glass. Both these hives were covered with thick cotton quilts made with soft black woolen cloth. This hive is naturally more satisfactory in many ways than the little one, since we can observe things on a much larger scale. We need never wait ten minutes to see a young bee gnawing her way out. We may observe a great many more workers about their different vocations, and the queen can very generally be found laying. Still, this outfit will cost, at the lowest estimate, from $1.00 to $2.00. Yet a man who had an apiary, or one of the boys in his family, could put such an outfit into a school for a few weeks at a cost scarcely exceeding temporary use of the glass and bees.

Of course, the best thing of all is a full stand, and a booming large one, in an attractive and safe glass hive. With this the boys and girls may actually see and study practically the whole theory and practice of apiculture, from noting the flowers which bees visit, with the hive-products derived from each, to sampling the honey of all the different grades, and making at least the chewing test for pure beeswax.

As already stated, I have used a number of different observation hives—in all, three different styles. I will stop to describe only the one which I have found best, and on just this point suggestions from any one who has been working along this line will be most gratefully received.

The hive is made of glass sides, ends, and top, which is removable, set in a frame of inch pine. The strips that go across for the top of the ends and the bottom end strip in front are one inch by two inches at the top, to allow for rabbeting down for the frame supports 1½ in., the bottom for a ⅜ entrance. All around the inside, the frames are rabbeted in ¼ inch by the thickness of the glass. This gives us a plain glass box all smooth on the inside. This is screwed to a bottom-board, into which beeswax has been thoroughly ironed in on both sides. The bottom-board is made of inch pine, and extends a foot in front of the hive, and through this extension it is screwed to the window-sill. This space between hive and window is covered in by a screen wire tunnel about 10 inches wide and 1½ deep, and forms the most fascinating place to watch the outgoing and incoming streams of busy life, the different-colored pollens, the loads of propolis and nectar, the carrying out of the dead, the most interesting "policing" of the entrance the actions of sneaks and robbers, the reception of a strange bee, or one that has been perfumed in various ways. This space should be provided with sliding doors, one of perforated tin to close the hive and one of tin to close the opening through the board that fits under the window-sash. This is to make it possible to confine a bee for a moment while it is being marked. For marking I have tried a number of devices, but have settled down on ordinary water-colors as the best and simplest way, and I use a fine brush that can be passed through the wire screen. It would be a desideratum, both for purposes of observation and ease in marking, if we could have a fine black wire screen with meshes as large as possible, but just small enough to prevent a bee from getting through, i. e., larger-meshed than the common fly-screen.

In marking bees I get a good dab of any desired color, on the back, between the wings; another on the back of the abdomen, and, most important of all, a good mark on the very tip of the abdomen. Until I discovered the importance of this latter mark I used to lose my marked bees for hours at a time, even in a single-frame hive. I finally caught one crawling into a cell, and watched her remain there lying quietly on her back for nearly five hours —resting or asleep?

The supers are made with glass sides, glass set in narrow wood frames and wooden ends, and the glass frame for the top of the hive exactly fits over a super. The whole hive is covered with thick soft quilting, made in rectangular pieces to fit both ends and one side, the other side being covered with a long quilt which laps over the top, and is long enough to cover three supers in position. The advantage of this mode of covering is that it can always be removed without a jar or creak, leaving the bees so completely undisturbed that I have not seen any tendency on their part to propolize the inside of the glass. It is very easily manipulated, and keeps the bees warm. For winter, in a room that is not heated, I have simply to throw over a few newspapers and large sheets of wrapping-paper, and tie down closely with cord. As I have all my hives under cover, I now propose making them all on this plan; but if any one can suggest improvements I wish he would do so before I get them all made. Materials for hive cost about $2.00, and the bees from $3.00 to $8.00, according to quality, size of swarm, and local prices. Still, it might be run to pay in honey and bees from one to two hundred per cent annually. A start might even be made with little or no expense to the school authorities; if some one who has bees would arrange the observation hive and manage one of his swarms, as suggested, either in the window of a schoolroom or elsewhere, where the classes could have free access to it. In fact, a bright boy I know of, who became interested in bees in the way suggested, while in the grammar school, bought a swarm with his own money, and has recently volunteered to place one of his swarms in a glass hive which he made himself, at the disposal of his classmates, now in the high school.

I have used the honey-bee thus in a large grammar school, the hive being located in an attic window; and during two seasons at the Clark University Summer School, and wherever introduced, it has proved one of the most, if not the most, fascinating part of a nature-study course. I should rather use pictures than a few dead bees, queen, drone, worker, etc., mounted in a glass case, with a little comb and all that; but when it comes to seeing things alive and humming, with all the bustle and hustle and go of an actual bee-hive, interest is unflagging and keen to the last. A number of the teachers have taken the suggestion home to their own schools.

Of course, the honey-bee forms a small but very important part of a nature-study course. Altogether the most important part of elementary botany, after the planting of seeds and rearing of plants, is cross-pollination of flowers, and, chiefly, how this is accomplished by insects. It is a wonderful coincidence that, among the million or more insect species, this one, so useful and beneficent, should be practically all-sufficient for this important function in nature. In a town or city, where each house has its garden and fruit-trees, I consider that one who keeps a few swarms of bees is a public benefactor, helping to supply his neighbors for a mile or more around with more and better fruit than they would otherwise receive. The class could easily test this by screening branches of apple, cherry, plum, and pear, before the blossoms open, and then counting blossoms and the fruits that set and mature, comparing these branches with others that were exposed to bees. Flowers and the production of seeds could be studied in the same way. Honey-trees and honey-plants should then receive some attention, and problems of planting parks and shade-trees with some reasonable consideration for the needs of our helpful and fascinating little friends.

In this section it is sometimes said that the basswood can not be planted to advantage on account of borers, and the same is generally true of the honey-locust. This is because our woodpeckers especially, other birds as well, have been so neglected or killed off. Our interest in bees and honey by the natural and important interrelations of all the different parts in the great scheme of living nature extends to an interest in certain injurious insects in tree, flower, and fruit culture, and in birds. This is but one example among many of irradiation of interest when we have really developed a warm focus of interest in some particular thing.

As a result which may appeal to bee-keepers especially, we ought to have generally disseminated an intelligent knowledge of the wholesomeness of pure honey, which would increase its consumption in this country tenfold. I think the honey-bee is soon to be given a trial at teaching practically applied industry, intelligence, and thrift in our public schools. At the outset we should like to hear all the possible pros and cons that practical bee-men have to offer; and we should be especially grateful for suggestions as to the best hives and apparatus for demonstrating the life of the hive.

Clark University, Worcester, Mass.
Sept. 12, 1899.

[In one place in the article above, Prof. Hodge speaks of seeing a bee go into a cell and stay there five hours, apparently sleeping. We often say that bees work for nothing and board themselves—work all day and sleep all night too. We have come to learn that the mammals require seasons of rest, and why should not insects also require it?—Ed.]

HOW QUEENS ARE PROBABLY OFTEN LOST.

How this Loss may be Avoided; Importance of Numbering Hives.

BY WM. MUTH-RASMUSSEN.

Although I never have any brood in my sections, it is no rare occurrence to find a queen among them. What she is doing in the super when there is not an empty cell available for her, is one of the "mysteries of bee-keeping" that perhaps may never be explained. I am, however, always watching for queens when I take honey off. I use a slatted honey-board between the brood-chamber and the super, and wide frames to hold the sections.

By the way, while I have seen both section-holders and other contrivances for holding sections, I have never thought well enough of them to abandon the wide frame; and I have heard many say that, for keeping the sections clean, it is superior to any other arrangement. A. I. R., why didn't you leave well enough alone? I use the Porter bee escape, putting it under the super in the afternoon as late as possible, and take the super off the following morning. The escape works all right, with two exceptions. During very warm nights the bees seem loath to go below; and if the queen is in the super, many bees will remain with her. If I find a number of bees among the sections, and especially if these bees seem inclined to show fight, I invariably expect to find a queen there. In such case I have found it prudent to smoke the bees a little in order to subdue their vindictiveness for the time being.

Now, as the loss of a queen may result in the loss of a good deal of honey, and perhaps the loss of a whole colony, I find it expedient to prevent this by a very little extra trouble. All my hives are numbered, both on front and back, so that I do not need to walk around a hive to ascertain its number. On the back of each super is tacked a piece of section. On this I write the number of the hive when I take the super off. As the supers are being constantly changed during the honey season, by putting empty ones on for the full ones taken off, the numbers on these tags will, of course, also be changed by striking off the old and putting on the number of the hive from which the super is last removed. If, therefore, I find a queen among the sections, after taking the super to the honey-house, the tag will tell which hive she belongs to, and I return her immediately to her own home. A case in point:

Last Saturday, Sept. 30, I took off a lot of supers under which I had placed escapes the day preceding. To-day, Monday, I took the sections out. While doing this I saw a queen standing on the face of a comb, but, contrary to the rule, she was quite alone, and there was scarcely another bee in that super. If there were any with her when the super was taken off they must have left during Sunday, and gone out through the bee-escape over the window. This was something out of the ordinary. If a bystander had asked me if I expected to find a queen there I would have answered, "Certainly not." Nevertheless, there she was, and, by accident, in plain sight, otherwise I might have overlooked and perhaps lost her. But the tag told me where she belonged, and within two minutes she was back in her own hive again. As it is getting to be too late in the season for having queens fertilized now, I should surely have lost that colony by dwindling and being robbed before spring, if I had not known where to put the queen.

I do not suppose my queens are different in this respect from those of other bee-keepers; consequently, many queens may be lost in just this way because their owner never thinks of the matter, and never suspects the true cause of the loss of a colony during the winter. A neighbor, with whom I was talking on this subject recently, told me that last fall, being unable, on account of ill health, to take the last honey off, himself, he let a hired man do the work. The supers were taken off with a rush, and piled up in the honey-room. The bees in them were only partly smoked out, and afterward liberated, as they collected in great numbers on the screen door. No thought was given to queens that were *supposed* to be in their appropriate place in the lower hive. During the winter he lost a number of colonies, and he now thinks the cause was the removal of the queens with the honey, and the failure to notice their loss until he found the colonies "gone up."

Numbers on hives are valuable in many respects besides the one above described. In keeping a record of queens and colonies, in the general apiary work, in swarming time, and in many other ways, the numbers are a help. I should find it impossible to manage an apiary properly without them. Numbered tags may be made of tin or wood, painted white, and the numbers marked on them with small brass stencils, such as the interchangeable lock stencils. It is but little work to prepare them, and they will last for many years, and pay for themselves in the convenience they afford for doing things with accuracy. I have numbers on many of my hives that are twenty years old, and as good, apparently, as the day they were made.

Independence, Cal., Oct. 2.

A NEW RECORD.

How W. L. Coggshall's Extracting-team Made it.

BY HARRY HOWE.

We have so got in the habit of thinking that our extracting-machines are the best in use that we rather expect to hold all the records for rapid extracting. In order to bring the matter to a focus I have prepared this account of our best record, so that any one who has beaten it may stand up and tell us how it was done.

Just now, Aug. 25, we are in the height of the buckwheat harvest, and are taking from 3000 to 5000 pounds of honey a day.

On the morning of this particular day Fred and I went to Ellis, 15 miles south, on our wheels. By some mistake there was not store room enough there for all the honey, so we had to leave 25 colonies until we could get back with some more kegs, which I did the next day. We got off 1500 lbs. before we stopped. This left us ready to start away early in the afternoon, so we concluded to go to the Etna yard and work there the rest of the day. This place is 5 miles northeast of Ellis, over a high range of hills, in the next valley.

As we passed through the village of Etna on the way to the bees, Fred spied a watermelon in front of a store.

"Harry," said he, "if you will carry that melon to the bee-yard, on your wheel, I will buy it."

In a very short time that melon was harnessed to the handle-bar of my Remington, and on its way through town, to the great astonishment of the grocer, who evidently did not know the carrying capacity of a wheel.

The Etna yard is about a mile from the village, back in a piece of woods. On our arrival at the bee-yard it was our turn to be surprised, for we were greeted by a series of "war-whoops," and a command to stand and deliver that melon. There was no bee-hive handy to throw at them, so we had to make terms. Our assailants turned out to be Harry B. and Archie, another extracting-team who had just arrived with a load of kegs. While we ate the melon we laid out a plan of campaign and assigned each to a station. These preliminaries having been attended to we prepared for war, which was declared at 4:15.

The bees here are in eight-frame hives, but the frames are longer and deeper than the regular Simplicity, so the eight frames are about equal to nine Simplicity frames. The supers had seven frames in the eight spaces. The combs were capped over nearly their entire surface, and bulged some from the wide spacing.

The extractor was near one of our regular four-frame machines, which have often been described. Harry B. took off and carried in the honey, replacing the filled combs with empty ones all the while. Fred turned the extractor; Archie drew off the honey, and filled the kegs, but was too light to roll them away, which one or another of the boys did for him. My especial work was to wield the uncapping-knife.

Throughout the entire trial I did not have to wait once for honey, nor did I get more than four or five combs ahead of the extractor. If I could have uncapped faster we should have made the record still larger.

At 5:30, an hour and a quarter after starting, the last comb was extracted. The estimated amount of honey was 1400 pounds—over 1100 pounds per hour. By six we were all ready to start for home, ten miles away. We put the honey into kegs that run about 220 lbs. net. Of these we filled six, and had a kegful of cappings which drained out another hundred pounds or more.

In cases like this, where there is a lot of cappings to be disposed of in a short time, we take one head out of a keg and lay a two-inch strip across the open end. The cappings then fall directly into the keg. When they are all in, a piece of wire cloth is placed over the head, and a hoop driven down over it, and the whole outfit turned upside down to drain. Next time around, the dry cappings are put into a box, and the keg filled up again.

Fred Munson, the son of a neighbor bee-keeper, weighs 130 lbs.; Archie Coggshall, W. L. Coggshall's youngest, can push down 70. My working weight is 115 lbs. Some of our other records are 900 lbs. in an hour for two men; 2500 lbs. in a day for Archie and Harry B, etc.

Ithaca, N. Y.

[I have seen Coggshall and his men take honey off the hives, and go through the whole operation of extracting. Every thing is arranged with the one idea of saving labor; and rapidity of movement, irrespective of stings that such movements may cause, has made a class of workers who have earned the name of "lightning operators." A boy or man never graduates under Coggshall without having first acquired the art of working rapidly and taking stings by the dozen, without even flinching. If a kick will take a super off the hive a little quicker, and at the same time jar bees off the comb, kick it is.—ED.]

ANSWERS TO SEASONABLE QUESTIONS BY G. M. DOOLITTLE.

GOLDEN ITALIANS.

Question.—Are the golden Italian bees a different race from the leather-colored Italians, or were they bred from the dark or imported Italians by choosing the light colored queens to breed from?

Answer.—According to my opinion, the Italian bees, no matter what their coloring, are not a fixed type or race of bees as are the German bees, or what are more commonly called "black" bees. They are a variety, or what might be more properly called a thoroughbred, the same being brought about by the environments of their home during many generations and centuries, the environments largely being the snow-clad Alps in Italy. The first importations of these bees to this country were quite dark — more so than the importations of the present day, if I am correctly informed. Early breeders of these bees found that they were liable to "sport," as it is called—that is, some of the queens reared would be almost entirely black, while others would be a beautiful yellow (the same as breeders of sheep find now and then a black or brown lamb born in a flock of white sheep); and the longer these Italian bees stayed in this country the more yellow they became, even where no special attention was paid to the matter of color. Finally, some of our breeders saw a profit in the beautiful yellow shown by some of the Italian queens, a few generations removed from the imported stock, so they began breeding along this yellow line. Notable among these were H. A. King, of Ohio; Mrs. E. S. Tupper, of Iowa, and Jos. M. Brooks, of Indiana, the latter seeming not only to breed for color, but for all of the other good qualities possessed by the Italian bee; and if there is any thing of praise to be said of the very yellow Italians of to-day, Joseph M. Brooks should come in for his share, for there are very few if any very yellow *Italian* bees in this country, at this time, but have more or less of the Brooks stock "blood" in their "veins." Why I have emphasized the word "Italian" is, there are many very yellow bees in the country which came from Cyprian stock originally; and this yellow breeding has been carried to such an extent that, in the very yellowest specimens, the queens do not show the least bit of black or brown on their abdomens, and the drones' abdomen is nearly a solid mottled yellow, while nearly or quite all of the workers are a solid yellow except the tip or point of the abdomen, which is of a brownish-black color. As this color is of such a rich orange or gold color, these bees are very properly called "golden Italians;" but, aside from those having Cyprian blood in them, all originated from queens imported direct from Italy, being brought up to their present standard as to color by selection.

FIVE BANDED BEES.

Question.—Are golden Italians what are called by some people five banded bees?

Answer.—The worker bees from an imported queen direct from Italy show two colors on each of the three horny scales or segments of the abdomen, next to the thorax. That on each segment nearest the thorax is of a leather color, and that farthest from the thorax being of a brownish-black color. This gave birth to the expression, "three-banded bees." As the breeding toward the yellow progressed, some individual workers were found having a very narrow stripe of yellow on the fourth segment of the abdomen, and with this stripe came the contention that the Italian was *not* a pure race of bees, but a mongrel or thoroughbred, as the question arose regarding this fourth band thus: "If bees showing three bands are pure, what are those showing yellow on four bands?" As the breeding for yellow continued, that on all the segments became wider and wider, the yellow encroaching on the black or dark more and more, all the while, until individual specimens began showing a very minute yellow stripe on the front edge of the fifth segment, which gave rise to the present term, "five-banded bees." As this yellow on the fifth segment increased, the dark or black stripes on the first, second, and third segments vanished altogether; and as progress continued the black finally disappeared on the fourth segment also, which made this individual bee appear something like a lump of gold as it sported in the sunshine in front of its hive. This gave birth to the name "golden Italians." And thus it is that the five-banded bees and the golden Italians are one and the same thing, only the goldens are a little further advanced in the race toward the yellow line than are the five-banded. While this is so, the two terms are very largely used indiscriminately, both being applied to the very yellow bees of to-day.

CONTRACTING BROOD-NEST FOR WINTERING.

Question.—Is it necessary when wintering on the summer stands to contract the brood-nest by using chaff division-boards?

Answer.—No, it is not absolutely necessary; still, it is very generally believed that, if the three lightest frames, as to honey, are taken out, and those left spread apart a little so as to give more room for the bees to cluster between each two combs and a chaff division-board, each taking the space occupied by a frame, placed in each end of the hive, the bees will winter enough better to pay for all trouble and expense. And while I agree with the above perfectly, I go still further and say that, in any locality, where such a course will pay, it will pay still better to have all colonies in full chaff hives which are wintered out of doors. Of course, the expense will be greater at the start; but after you have your bees in chaff hives there need be no further fussing either summer or winter thereafter, as the chaff hives are fully as good for the bees in the summer as in the winter. Some seem to think that a chaff hive is not a good thing for summer; but from an experience covering more than a score of years I am satisfied that a chaff hive will give a greater surplus of honey during the summer, if I may be allowed such an expression, than will a single-walled hive, especially of comb or section honey.

COVERING FOR BROOD-FRAMES.

Question.—When wintering out of doors, which is the better way to cover the brood-frames—with a thin board or super cover, putting the chaff cushion on top of them, and then a cover on the cushion, or putting the cushion directly on the frames with a Hill device or something of the kind under it, and then putting on the cover?

Answer.—My method of using chaff cushions is as follows: Buy the necessary number of yards of unbleached cotton cloth, and cut it in such shape that the pieces will just cover the top of your hive from outside to outside. Now put on your Hill device, or three or four sticks one-half inch square and ¾ as long as it is across the tops of your frames, so the bees can pass over the tops of the frames under the covering. On top of these sticks spread your piece of cotton cloth, and on top of the cloth place the chaff cushion, and over all place the hood or cover. This cover should not come down on top of the chaff cushion, but should allow a space of at least an inch (two is better) over the cushion for the air to circulate so as to carry off the moisture which may arise and be driven up through the cushion from the bees below.

AGE OF USEFULNESS OF BROOD-COMBS.

Question.—How long can combs be used in the brood-frames before it will be necessary to cut them out and put in foundation, or let the bees build new ones?

Answer.—Well, really I don't know. There are some who think it is necessary to renew brood-combs every twelve or fifteen years, they believing that, by that time, the cocoons will have so accumulated in the cells that the accumulation will make the cells so small that dwarf bees will be the result. This "think" of such parties seems to me to be ungrounded, for I have brood-combs in my apiary which have been in continuous use for 30 years, and some much longer, as they were transferred from box hives, and, so far as I am able to discover, the bees hatching from them are as perfect as ever. If I had perfect worker combs, from the present light I have I should say that they would be good for half a century, barring accidents. But this is something each must decide for himself. Perhaps I am too conservative; but it has always seemed to me to be a foolish thing to destroy some of the good things we have in use for the sake of replacing it with something *new*.

HEADS OF GRAIN FROM DIFFERENT FIELDS

THE DESTRUCTIVENESS OF DISEASED BROOD IN SCHOHARIE CO., N. Y.

I don't know but I have made it too tame in what I have said about diseased brood, for it certainly has ruined a good many apiaries in Schoharie and Montgomery Counties; and a great many who keep only a few hives are all cleaned out. It did look very discouraging; but when so many have got to be all right again it seems to be somewhat encouraging. If we can only winter our bees well, and succeed in getting them strong, and keeping them so, if it can be done by uniting bees it will be better than to try to nurse up weak colonies. We may be able to fight it out.

Where a great many bees are kept, and where the diseased brood has done the greatest damage, I think fully three-fourths of all the colonies have perished in the last three years, for a distance of 35 or 40 miles, leading from Gallupville, Schoharie Co., west to Central Bridge, Sloansville, Glen, and Randall, Montgomery Co. The disease is also in Otsego, Schenectady, and Albany Counties.

Middleburg, N. Y. N. D. WEST.

A CRITICISM ON THE TALL SECTION.

There has been so much said in favor of the tall narrow section that it seems to me the adverse side (if there is one) should have its say. Following E. D. Ochsner, p. 752, I will state that I have produced some honey in the above section for the past two years, and have taken pains to ask the opinion of disinterested parties in respect to their choice, placing the regular 4¼ × 4¼ section alongside of the ideal. All I have asked here in Wisconsin said they would prefer the square section, except two people. One was a commercial traveler, and the other was W. Z. Hutchinson, of Michigan. Mr. H said he liked the shape of the narrow section better; that pictures, door and window frames, etc., were of that oblong shape, and it is more pleasing to the eye. But the womenfolks everywhere have said the square piece of honey would lie on a small round plate better than the other.

Now, I agree with Mr. Hutchinson in regard to the shape of picture-frames and window-frames; but a section of honey is neither one nor the other, and is not intended for that purpose. Further, no one has ever told us how to put foundation in the tall section, and have it stay where we want it, as easily as can be done with the square section. The best section ever used by bee-keepers was both tall and wide, and held about 1½ lbs. of honey; and if all had been satisfied with it we could have been using it to-day. If no one had offered a smaller section we could have sold the large ones just as well, and have had more to sell with the same amount of labor. There is no question but that consumers would buy the honey if we produced it in that shape; but if we are so foolish as to introduce something still harder to produce, and more difficult to handle, than the one-pound section, the dealers will all want it of course, and we shall get not one cent more for it as soon as it becomes common.

Browntown, Wis., Oct. 24.

[This question of a tall versus square section hinges not so much on what the *producer* thinks of it, but upon what the *consumer* or *market* in a given locality calls for. The average bee-keeper regards with distrust any thing that is likely to require a change in his fixtures. The consequence is, the real merit of the thing under consideration may be unconsciously covered up by prejudice and self-interest. My own observation regarding the expressed opinions of others has been quite the reverse of yours; but why this difference? Is it not true that our friends like to express an opinion that will be likely to agree with our own? You may think they do not know your preference; but it is a hard matter to state a question without revealing your own opinion in advance. The tall section is not in much favor in some parts of the West, and we may as well admit that fact first as last. In Colorado especially, the bee-keepers are decidedly opposed to it; and from the few reports we have had from Wisconsin and Minnesota I should judge that it is not very popular in those States. But in the greatest honey markets in the United States, and possibly in the world, the tall section has the general preference. I refer to the markets of Albany and New York city.

This preference for tall sections and square ones, it seems to me, is a good deal like the question whether we prefer warm heavy shoes for Canada or light summer shoes for Texas. Local conditions are so very different that, to express an opinion on the merits of the two kinds of shoes, would seem idle.

As to the matter of fastening foundation, that is no more difficult in the case of the tall box than the square one. Why should it be? The tall section is only ¾ inch higher than 4¼ square.

Again, the Ideal section 3⅝×5, is condemned by some, while the 4×5 is considered just the thing.—ED.]

GENTLE BEES THAT ARE HUSTLERS.

The editor, page 725, speaks of the extra amount of work "cross or snappy" bees are able to turn out. Now, that may be true; but I'd like to see any "cross or snappy" race of bees take a contract to outdo one hive that I have, filled with bees from a queen from J. P. Moore, Morgan, Ky. Through an advertisement in GLEANINGS I sent to Mr. Moore and obtained something as near perfection as I have ever seen. No one has ever been stung by her bees, and the hive has been opened repeatedly in wind (do you know what Dakota wind is?) without smoke or veil. I send you a photo of my little daughter, two years and nine months old, with a frame of them. Notice the bee on her forehead. She knows they will not hurt her. She has often been stung, but not by that colony; and if any one has "cross or snappy" bees that can beat them hustling, please quote prices. I am open to conviction. D. B. LYNCH.

Watertown, S. Dak.

[I do not know any bees that will outdo yours, friend L., unless it is those spoken of by A. J. Wright in our previous issue. These gentle bees that are full of business are just the chaps we want. Verily this talk about $100 queens, even if it has ended in nothing but talk, so far as high priced queens are concerned, will be productive of a much higher grade of bees for business.—ED.]

THE CRANE SMOKER.

I note a letter from Mr. Callbreath, on page 754, regarding the weakness of the Crane smoker. I thought it might not be out of the way to say that the Crane as you have made it is not always thus weak. I have one that I have used for five seasons, and nothing whatever is the matter with it or ever has been. True, I have not used it as constantly as might be, as the writer referred to uses his; but I have often been thoughtless, and left it out in the weather all night to get damp, and even wet with rain; and I almost always have opened it, when putting in fuel, by hitting the under side of the nozzle against any convenient fence, post, or other object. So it seems to me it is pretty well made. A. NORTON.

Monterey, Cal., Oct. 30.

[We try to give space to the criticisms as well as to the praises of our goods. *Of course*, we like the latter better; but the others, when honestly and fairly given, are more valuable, both to us and to our customers.—ED.]

TRAVEL-STAIN OR PROPOLIS; HOW TO PREVENT BEES FROM GNAWING THROUGH THEIR QUILTS.

For years past I have used waxed cloths over brood-frames. The bees propolize the spaces between the frames quite liberally, and ofttimes manage to insert a good deal of the stuff between the cloth and the top-bars. Once in a while I remove the cloths and run a hot laundry-iron over them, thus diffusing the propolis over and through them. Prior to this operation the bees are somewhat disposed to gnaw the cloth, but never after. Now, I have a number of these cloths that have been in use several years. They are as dark or black as any brood-comb I ever saw. I use propolis for certain purposes. I have cakes and balls of it, reserved for future use. They have all become nearly black. Take one of them, pull and work it as you would taffy, and, like taffy, it will assume a light color. This, I think, proves that the dark color is not due to foreign admixture.

Propolis is dear to the heart of Deborah. The varnisher with her brush and liquid propolis is busy everywhere. Nothing inside the hive escapes her. Combs, cracks, frames, interior walls, and even the exterior, when the bees cluster out, receive her attention. This varnish blackens with age, and this is "travel-stain"—at least I think so. A.

THE "REFORMED" SPELLING.

I have only commenced taking GLEANINGS, but notice you are thinking of changing the spelling of the English language, which change is said to be "reformed." Surely this is a misnomer; and as we find it in the *American Bee Journal* it is *deformed* spelling. We read, not by spelling each letter in a word, but by the general *appearance* of the word, just as we recognize our friends — we do not stop to analyze them, but know them by their general appearance. When deeply interested in an article by Dr. Miller, Doolittle, and others, and to run up against one of those hideous malformations, miscalled "reformed," the reader has to stop and study out what it may be intended for. By this time he has lost the thread of the story, and a large share of his patience; wishes the editor of that paper had had in his younger days the advantage of a common-school education, and not been compelled to pick his learning out of Josh Billings' Almanac. How do you think the word of God would look if edited in the office of the *American Bee Journal*, while the editor has this bee in his bonnet? P. M. HAMLIN.

Binghamton, N. Y., Nov. 10.

[We had not proposed to go as far as the *American Bee Journal* in its reform, but only to make a very slight change — so slight that it would hardly be noticed. We have for years used the short forms, *program* and *catalog*, and now it was proposed to go one little step further. We are still waiting for expressions from our readers; and if there are enough to protest, the "reform" will not be inaugurated. So far there are about seven who have voted against, to about 100 for it.—ED.]

REFORMED SPELLING CONDEMNED.

Dear Mr. Root:—I admire you and your paper as an authority on bees; but when an editor of any periodical with a circulation of only a few thousand copies published once a month anticipates, better say contemplates, the modification of the English orthography, then he must be laboring upon the borders of "swellheadism." Good old Webster is good enough for me, and the rules therein are what this generation should adhere to. There is one bee-journal that makes a horrible attempt in this direction, and that should suffice. You remarked that you had not received an objection, etc. Well, put me down as an "objector." Go ahead and modify spelling, and then eliminate yours truly from your list. Confine yourself to bees and bee-questions, and you have a perpetual subscriber in

Yours truly,

GEORGE N. WANSER.

Rahway, N. J., Nov. 10.

[You are the seventh person out of the 100 and more that have voted for the reform who has objected to the proposed slight changes.

GLEANINGS with its nearly 11,000 paid-up subscribers is not a very big concern, it's true; but the New York *Independent*, one of the greatest metropolitan weeklies ever published, has been carrying into effect for years just the reform that has been proposed for us. It has lost neither prestige nor influence.

You say, "Good old Noah Webster is good enough" for you. Have you forgotten that Webster was a spelling-reformer — that he eliminated *u* from such words as *labour?* and that he adopted other shorter spellings? Why, Webster went as far as we propose going.

Your position would leave no chance for progress. We should have a regard for the rising generation, and the foreigners who come to this country, if not for ourselves.

But you ask, "How about those who have not voted?" I have assumed that those who have not expressed themselves have no preferance. He who stays away from the primaries has no right to kick afterward if things don't go to suit him. You say that, if we inaugurate the change, we may drop your name, even though the great majority is against you. Do you really think that a threat of this kind is in good taste? and do you believe that the loss of one subscriber or dozens of them would deter us from carrying out a policy that we thought was for the general good? and does it not almost "border on swellheadism" to imply that we would be influenced by the action of one subscriber irrespective of the expressed opinion of hundreds of others? Now, don't jump to the conclusion that we are going to make the change. There is no hurry; and, besides, we wish to get the fullest expression. If there are enough "objectors" we will continue on as we have been. In the mean time, don't get the idea into your head that we proposed going as far as the *American Bee Journal.* The change proposed by us would hardly be noticed, even if it were carried into effect.—ED.]

THE ECONOMIC SIDE OF SHORTER SPELLING.

Please accept my thanks for your kind reception of my plea for shorter spelling. It is interesting to note that advertisers are beginning to appreciate the advantages of shorter spelling. In a recent issue of a family story-paper I counted a dozen advertisements employing the word *catalog*, and less than half of them spelled it with *ue*. In a paper like *Youth's Companion*, where advertising space costs $4.00 per agate line per insertion, *ue* would cost in agate type $8.32 per year, or in nonpareil about $10. Please record this as a vote for the shorter spelling.

Addison, N. Y. E. B. THORNTON.

EDITORIAL BY E. R. ROOT

EXTRA pages again.

THAT man Hutchinson of the *Review* knows how to dish up seasonable bee-stuff.

THE *American Bee Journal* is getting out a good report of the Philadelphia Convention. The paper of Prof. Wiley, United States Chemist, is especially valuable.

IN next issue we expect to give pictures of the two best-looking editors in all beedom. (The representatives of GLEANINGS will not be in it of course). Good-looking girls will vie with them in—in good looks on other pages.

IN our next or Christmas number we expect to show some of those prize pictures of pretty girls hiving swarms of bees. Old bachelors need not put in their applications, because I have made a solemn promise not to give their names.

ALL empty combs not in the hives should be put in moth-proof boxes, hives, or rooms, where the temperature is liable to go down to freezing or lower. Combs after a good freeze, and kept away from further visitation of moths, will be safe until wanted again.

WE shall go into winter quarters with nearly 300 colonies. We winter exclusively outdoors, packed in chaff or planer-shavings. We have not much preference for one over the other, although, as a matter of fact, we use the shavings because they can be very readily obtained.

MORE of an effort should be made by bee-keepers to educate consumers to the palatability of candied honey. In many a bee-keepers' home the white solid honey is preferred even up. It spreads better on bread, does not muss up whiskered mouths, and the small children can eat it without smearing the table-cloth.

WHILE this journal is going to our readers I shall probably be in attendance at the Colorado State Bee-keepers' convention at Denver. I go with my largest and best camera, prepared to shoot any thing or anybody that stands in the way—that is, provided they are good-looking, you know. My! but I only wish I had the time to run up northward and shoot prairie chickens. I am very fond of that kind of "snap shot."

I TAKE this opportunity to thank the many friends who have spoken so kindly and favorably of the new edition of the A B C of Bee Culture.

If there is any one thing in the new edition that has met with the hearty approbation of bee-keepers in general, it is the fact that I have endeavored to give, carefully and faithfully, the views of others, even when their practices are opposed to my own experiences.

COMB HONEY IN COLD WEATHER.

BE sure to warn the groceryman, or any one else who handles your honey, to keep that in the comb, at least, in warm dry rooms. A room subject to freezing temperature should never be used for the storage of comb honey. Freezing cracks the cappings, and when the room warms up again it will sweat like a pitcher of cold water on a summer's day. Unsealed comb honey receiving such treatment will also be ruined. The "sweat" will mingle with the honey, thinning it so it will sour. The commission man is supposed to know all this, while your local grocer may be utterly ignorant of it.

THE NEW ARRIVAL AT THE HOME OF THE HONEY-BEES.

I FULLY intended to tell something about the latest baby at Rootville; but Bro. Hutchinson has got ahead of me. This is what he has to say:

> Ernest Wynne Boyden is the name of a new little boy that came November 2d (the 21st birthday of our twins) to gladden the home of Mr. and Mrs. A. L. Boyden, of Medina, Ohio. Mr. Boyden is the Michigan young man who went down to Medina a few years ago, became one of the business managers for The A. I. Root Co., won the heart and hand of Constance Root, or "Blue Eyes," as Mr. Root used to call her in GLEANINGS, has since become one of the partners in the company—and now has a boy, as well as the rest of them. Congratulations, Arthur.

DR. MASON ON THE SPELLING REFORM.

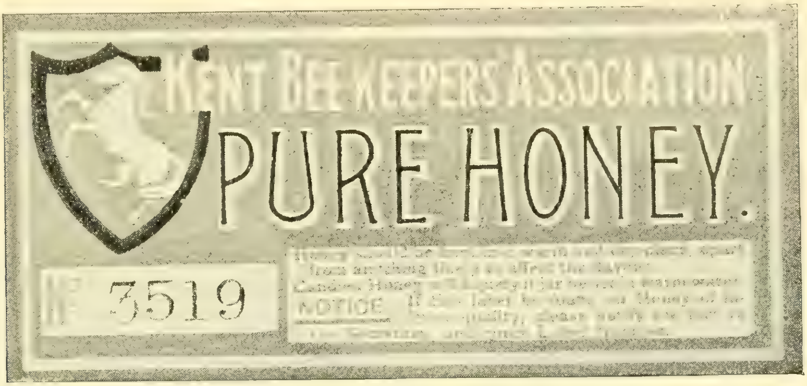
DR. A. B. MASON has not a little to say in the last *Bee-keepers' Review* in favor of the shorter forms of spelling proposed for GLEANINGS. In winding up he says, "I am going to vote, even if it does cost a cent; and still I have a sort of feeling that a postal card is hardly large enough for my emphatic 'go ahead; and among other improvements in GLEANINGS, improve your spelling.' And now I am wondering whether the staid and methodical *Review* will fall in line." But, dear doctor, we have not "fallen in line" yet. We are going to wait long enough to get full returns from those who desire to express themselves on this question. I said a while ago, that only one protest against the change had come in; but now six more may be added to the list, notwithstanding "yes" votes are still coming in. There are so many of the latter now that I can not give space to them.

"GADDING ABOUT THE COUNTRY."

SOMEBODY was criticising Mr. W. Z. Hutchinson for "gadding about the country" when he ought to be at home "tendin' to his knittin'." While it is a splendid thing to be punctual with periodicals, yet it seems to me it is almost absolutely nececssary for the editor of a bee-journal to skirmish around among his friends and — his enemies to get his own ugly corners knocked off. While I still have a few "corners" to be disposed of cheap, incidentally I'd like to see how those chaps in the wild and woolly West do things. My visits thus far have been largely eastward, with perhaps one or two short runs out into Nebraska, Illinois, and Michigan; but I have never been in Colorado, and in the short time I shall be gone (two weeks) I hope to pick up something of interest for all our readers. I'll leave my bike at home this time, for those magnificent distances are too great to cover on that kind of horseless vehicle.

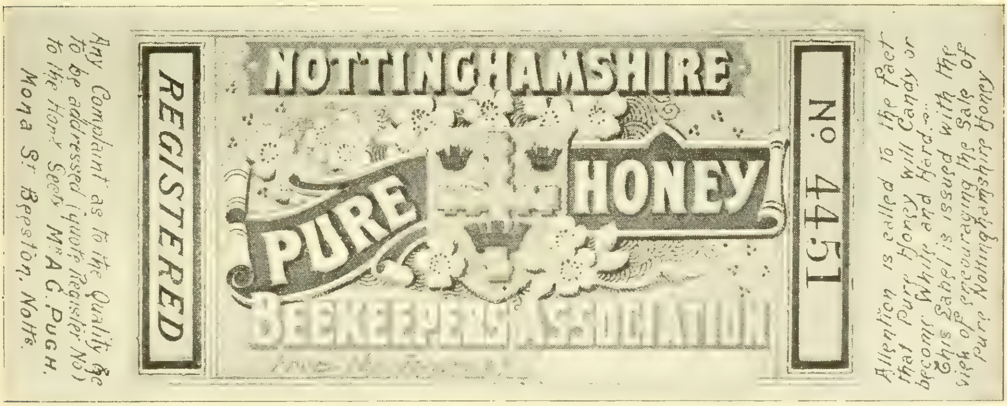
THE ASSOCIATION BRAND OF PURITY.

I BELIEVE I have before referred to the fact that the British Bee-keepers' Association is perhaps the best organized of any similar association for the advancement of bee-keeping in the world. The Baroness Burdett-Coutts is, I believe, president, an attachee of the queen's household, and one who is greatly interested in bee-keeping. The main or parent organization is affiliated with a number of county associations throughout the kingdom. For instance, there is a Kent Bee-keepers' Association, a Nottinghamshire Bee-keepers' Association, and how many more I do not know. Each of these organizations, I believe, puts out a special brand or label for honey which the members, upon complying with certain conditions, are permitted to use.


KENT BEE-KEEPERS' ASSOCIATION
PURE HONEY.
No 3519
NOTICE

I have had two of their labels reproduced for the benefit of our American producers. It is evident that any honey that buyers get, bearing any of these brands, is guaranteed to be pure and of good quality. The special register number shows by whom the honey was produced; and if any complaint arises, the responsibility can be located where it belongs. A knowledge of this fact naturally enough leads the producer to be careful what honey he puts out under the association brand. But I presume that, as a further precaution, all honey, before it can be thus labeled, is required to pass an inspector appointed by the association. I say *presume*, for I don't know.

In time the general trade will learn that honey bearing such labels would necessarily be pure, and of the very best quality. The poorer grades of honey should, of course, be otherwise disposed of.


Any Complaint as to the Quality &c to be addressed (quote Register No.) to the Hon. Secy. Mr A. G. Pugh, Mona St. Beeston, Notts.
REGISTERED
NOTTINGHAMSHIRE
PURE HONEY
BEEKEEPERS ASSOCIATION
No 4451
Attention is called to the fact that Pure Honey will Candy or become White and Hard.
This Label is issued with the view of encouraging the Sale of pure Nottinghamshire Honey

The effect of this branding of honey of known purity, and of the very best quality, must be such as to bring the very best prices; for the general consuming public is perfectly willing to pay a good price *provided* it can be assured that it is buying pure goods and of the very best.

Some years ago an effort was made on the part of a few members of what was then called the North American Bee-keepers' Association, now known as the United States Bee-keepers' Association, to get up special association labels or brands, the general scheme having originated from the successful practice of the British bee-keepers' associations, but the plan did not materialize. But within the last two or three years one of the county associations of New York began the scheme, and, if I am correct, it is still carrying it into effect. A brand, or stamp, was prepared, and every case of honey approved by the inspector bears this brand. The idea was a good one, and it may be by this time that this particular brand of honey has won a reputation of its own; and when it becomes known, the result can not be otherwise than that higher prices will be secured.

DAVID H. COGGSHALL; REVERSIBLE VS. NON-REVERSIBLE EXTRACTORS; HONEY BY THE CARLOAD.

I HAVE before spoken a number of times of W. L. Coggshall, or "Lamar," as he is familiarly known in the buckwheat country; but I have given only passing references to his brother, David H. Coggshall. The latter is equally successful as a business man; but instead of making bee-keeping so much of a specialty he seems to have a combination of other lines, farming, bee-keeping, and poultry-raising.

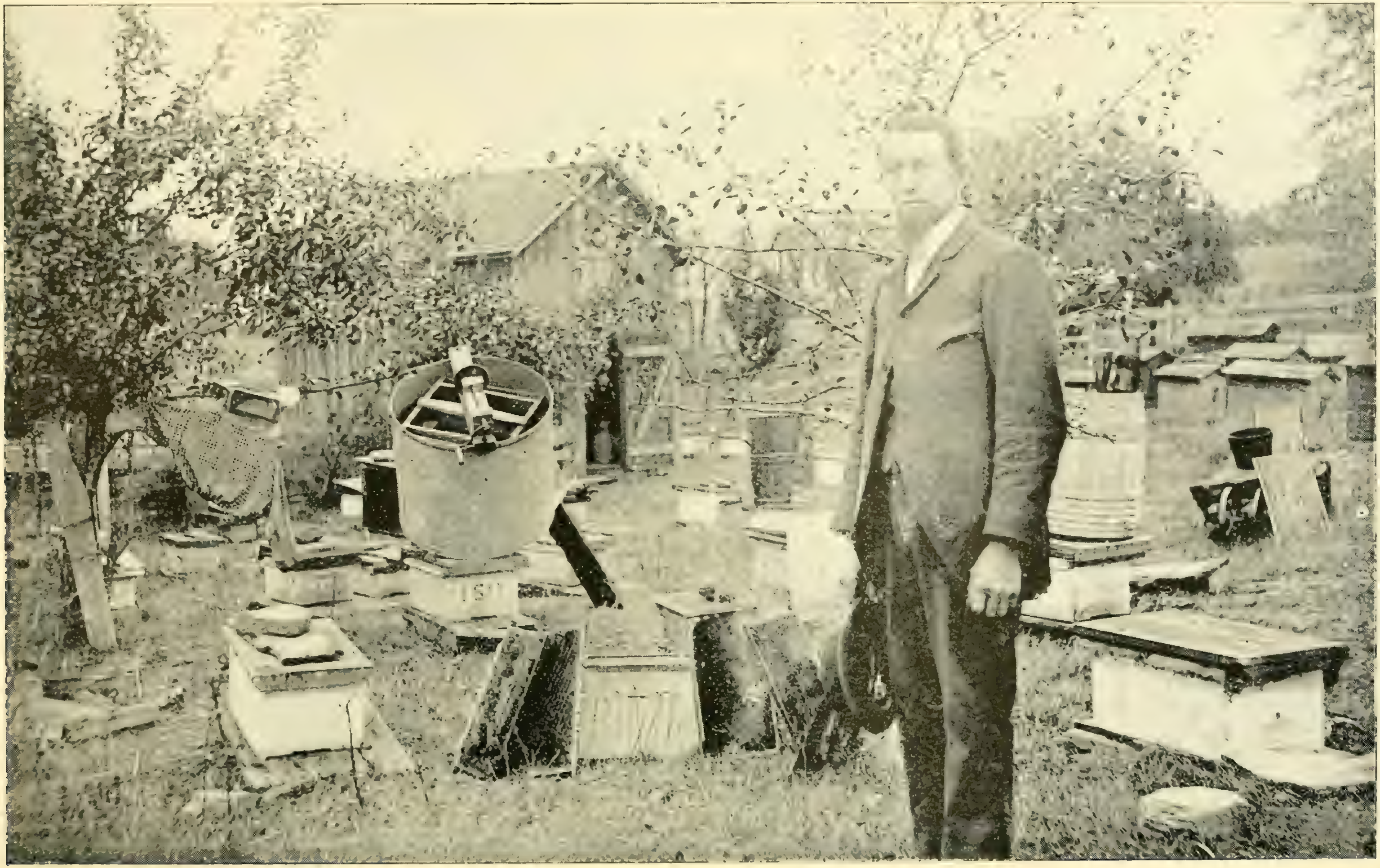
David H. keeps something like 600 colonies, and occupies a territory between Lake Skaneateles and Cayuga Lake, and, if I am correct, immediately north of West Groton, while his brother Lamar occupies the territory between the lakes directly south. The two brothers were formerly in partnership; but in 1877 they dissolved, each running for himself.

The methods of David H. are, I should suppose, practically the same as those of W. L.; but whether the former practices the kick-off-super method of taking honey, I do not know; but I do know that he wears an armor (a bee-suit) similar to what his brother finds necessary and convenient. This armor may be seen hanging to a tree (scare-crow fashion), in the left of the large picture shown on next page. It consists of an ordinary waist or wamus, a bee-veil and hat being part and parcel of the waist. This is looped up all around the body, and is made absolutely bee-tight. Wire cloth in place of netting of some sort seems to be used in this particular bee-hat; indeed, I doubt very much whether the ordinary silk brussels netting would be strong enough to resist the desperate onslaught of the Coggshall bees. There, I guess I better not say any more on that subject or I may have the two brothers hauling me over the coals for giving away their—their—trade secrets.

The gentleman in the right foreground is David Coggshall himself. One would think, in spite of that ominous bee-suit, to see him standing there *bareheaded*, that I had awfully maligned the Coggshall bees; but let me whisper in your ear, that, when a man is standing where the world is gazing on him, he can stand any kind of onslaught without flinching.

Just at the right of the bee-suit, and resting on hive 160, stands one of the Coggshall extractors. This seems to be constructed exactly the same as those used by Lamar. As I have before explained, the machine is non-reversible, taking four Langstroth frames, the frames hanging exactly as they do in the hive. Instead of being placed in the four sides of

RESIDENCE OF DAVID H. COGGSHALL, WEST GROTON, N. Y.



ONE OF THE OUT-YARDS OF DAVID H. COGGSHALL, OF GROTON, N. Y.

the basket, in the ordinary fashion, they are set down in the machine, two on a side. A strip of tin separates the two combs so that the honey from the inner one, instead of striking the outside comb, flies against the tin, draining down in the extractor. The cross-arm is made of wood, and even the bearings are of the same material.

As crude as this arrangement apparently seems to be, I am not sure but, by the manner they operate, they can extract as rapidly as one could from an ordinary four-frame Cowan.

It is certainly an advantage to set the combs in the extractor in the same way they are taken from the hive; for I am satisfied they can be picked out of the hive and set down in the extractor more rapidly than the same number of combs could be picked out and inserted in a Cowan, because, in the case of the latter, the frame is lifted out with one hand, and with the other hand it is turned at right angles so that it can be set down *endwise* in the machine. On the other hand, the Cowan would save time in reversing, so that, take it all in all, if there were a race or contest between the two machines they would run very even in the actual product extracted. "But," you say, "why not make Coggshall extractors?" For the reason that the bee-keeping fraternity has been educated the other way; and although we have offered to furnish such extractors, no one has called for them outside of Coggshall's immediate neighbors.

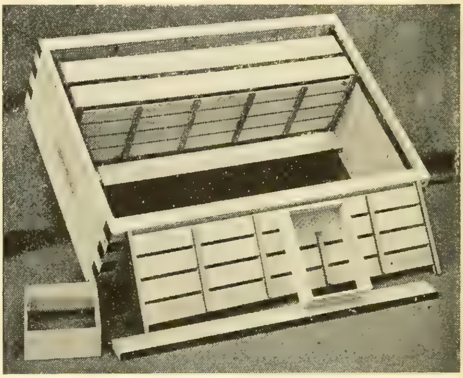
The annual crop of honey produced by the Coggshalls in good seasons can be measured, not only by the tons but by the carloads. When I was there I overheard (I wasn't eavesdropping) David say to Lamar that he had had an offer of a certain figure on a *carload*, and would he, Lamar, accept? The latter hesitated a moment, and then said, "Better wait a little longer; we can do better than that." "*Carload?*" said I, interrupting. "How many cars do you two produce?" "Not very many this season," was the reply.

From one of his best yards David Coggshall took as many as 60 210-lb. half-barrels of well-ripened honey; and Lamar, from all his yards, took 78,000 lbs. in 1897, or an amount equal to three carloads; or the two brothers, at this rate, in a good season, might produce between four and five carloads.

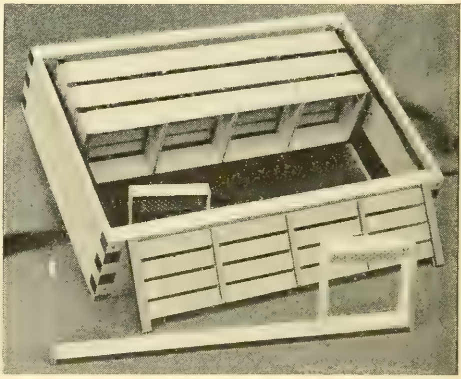
Both of the Coggshalls make money at any thing they undertake, whether it be at farming or at bees. They have beautiful farms, and live in fine residences, one of which is shown on the previous page, the home of David Coggshall. They are finished off in hard wood inside, and are equipped with all the conveniences to be found in the best homes in the land.

COMB-HONEY SUPERS.

THE regular T super is a general favorite with a large class; but within a few years the section-holder arrangement seems to be getting the larger share of patronage, and very recently that super which makes use of the simple supporting slats has been gaining favor. As the construction of the latter is not very generally understood I give here a picture that will show very clearly how it is made. This is what is called the Ideal section super. The sections themselves are 3⅝ × 5 × 1½ wide. Five of them are used in each row, said row being supported by a slat ⅜ thick and 1½ wide. Between each two rows of sections and slats is inserted a fence—fences, slats, and all, being held in the usual way by strips of tin nailed on the bottom inside edge of the ends of the super. This super economizes space better than any thing else that is now on the market.



The 4¼ section, owing to the fact that four rows are hardly sufficient to occupy the whole inside length of the super, and that five rows would be longer than the length desired, requires a wide frame or a section-holder. The ¼-inch ends of the section-holder, together with the bee-space between ends of super, plus the four sections, take up all the available space. The section-holder ends and the bee-spaces are regarded by many as being superfluous. If the Langstroth frame had been a little shorter, so that the 4¼ section would have just filled out the length of the super, we should then have had an "Ideal" arrangement.



THE DIVISION-BOARD FEEDER.

DURING the past summer and this fall, our apiarist, Mr. Wardell, was very enthusiastic over the Doolittle division-board feeder. At first I did not take very much stock in it; but Mr. Wardell persisted that it was the best feeder for stimulating ever devised, and since seeing it in use I have come to share his opinion.

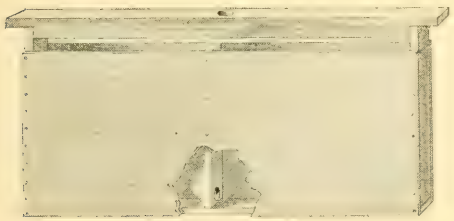
Its manner of construction will be apparent from the engraving below. It consists of an ordinary brood-frame having a thick top-bar, with this difference : That the frame, instead of being made ⅞ or a full inch wide, is anywhere from 1½ to 1¾. On each side, and reaching up to within ½ inch of the bottom of the top-bar, are nailed two thin boards, the nails being driven close together to make the feeder syrup-tight. To further stiffen the feeder, a central partition with a hole in the bottom is let down the feeder and nailed. The purpose of this hole is to give the syrup a chance to seek its level on either side of the partition. Another hole pierces the top-bar, and it is through this that the feed is poured.

This feeder is set down in the hive like an ordinary brood-frame, and can be used, when empty, as an ordinary division-board or dummy to fill up the space in the hive not occupied by the combs ; in fact, it is a good plan to have one in every nucleus ; for, while it serves the purpose of a division board, it will be ready at any time for feeding.

The operation of feeding is very simple. With a large tea-pot filled with syrup, go to the nuclei requiring to be fed. Slide the cover or quilt back just far enough to expose the top-bar of the feeder. Pour the syrup down into the feeder through the hole until the holder is full. Roll the quilt back, and the hive is then closed up.

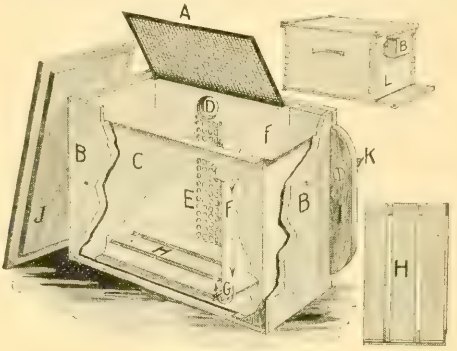
These feeders can thus be filled without exposing the cluster of bees ; and as the feeder is right down in the brood-nest, in the warmth of the cluster, the bees will readily take the feed at any time.

If you are not a good enough carpenter to make water-tight joints in wood, you can make your feeders so they will hold by pouring in hot paraffine or beeswax, and then quickly pouring it out again.



We have used a large number of these feeders in our yard, for Mr. Wardell seems to prefer it to the Boardman, since on cool nights the bees will not take the feed from an outside feeder as they will from one inside next to the cluster. Then Mr. Wardell thinks the Boardman is a little inclined to incite robbing ; and for stimulating nuclei he very much prefers the Doolittle.

Speaking about feeders, Mr. C. S. Foster, of Meriden, Ct., has devised another outside feeder. Unlike the Boardman it is fastened on the outside of the hive ; and it is so constructed that the feeder can be filled at any time without disturbing the cover or the hive itself. But of course there has to be a hole through the side of the hive into the feeder, and through this the bees take their feed. I have no doubt this would be a very excellent feeder, and quite free from any tendency to start robbing ; but it has one great objection ; and that is, the average bee-keeper would be much disinclined to bore holes through the sides of his hives.



THE FOSTER BEE-FEEDER ; PATENTED.

BOOMING POOR ARTICLES FOR SELFISH INTERESTS.

ON page 338 of the *Bee keepers' Review*, R. L. Taylor says:

> The editor of Gleanings (pp. 753, 757, *et al.*) seems to be very sensitive to the innuendoes and charges frequently made that his company takes up and booms new things, like plain sections, tall sections, fences, etc., with the sole purpose, regardless of the interests of customers, to make money out of them. Indeed, one is led to wonder whether the editor, judging from his anxiety and protestations, does not ignorantly feel in some degree guilty. But those who are making the insinuations referred to ought to know better than to do it. Such a course would be suicidal on the part of the company. Successful trade depends upon a profit to each party to it. The A. I. Root Company is not without commercial sagacity; and it is not going to run counter to that principle knowingly.

Perhaps I may have been over-sensitive at some charges that have been made against us ; but in any case I did not lose any sleep over the matter, neither did I feel "in some degree guilty," although it may have looked very much that way from what I have said along these lines of late. The fact of the matter is, we can not tell what we would do or say until we are hit ourselves. It all depends on whose ox is gored.

But Mr. Taylor has hit the nail on the head when he says that a course of this kind would be suicidal on the part of the company, and that successful trade depends on a profit to each party. Exactly. Outside of the morals or ethics of the thing, one for his own self-preservation should not from motives of self-interest try to make a general catalog out of his paper; for if he does he will do something far worse — he will cheat himself in the end, as well as the government of rightful postage. I would not take space in a paid-for journal for the discussion of supplies except that I know that such a subject is of general interest, especially when it relates to changes and improvements. For instance, I take two bicycle papers, and there is not a department in these papers that is of more interest to me than the general discussion, from the manufacturers' standpoint of view, of various improvements that are introduced from time to time; and the same is true in regard to photographic journals. In bringing up the discussion of supplies in a bee-journal, one should have in view the placing of something of general interest before his readers. By so doing he often gathers suggestions which, if he is a manufacturer, he may be able to incorporate into his supplies, thus benefiting the fraternity at large. I have of late invited criticism on the things we make. The result has been that we slightly changed the construction of several of the things we manufacture. The discussion in the first place is interesting, and the result in the end is permanent gain for the bee business as a whole.

BEE-KEEPERS' INSTITUTES FOR NEW YORK.

The following letter from W. F. Marks will explain itself :

> I wish to call attention to the bee-keepers' institutes to be held in this State next month under the auspices of the Bureau of Farmers' Institutes, F. E. Vawley, director. This is a new departure; but if bee-keepers will take hold and show that they appreciate and deserve them, we hope to make them a permanent feature of our work in this State.
>
> I inclose a clipping from the *Country Gentleman*, giving a list of meetings already assured, and should be pleased to have you give this mention in your next issue, and also urge the bee-keepers in the several localities to take an active interest in them.
>
> "By special arrangement with the State Bee-keepers' Association, the director will hold bee-keepers' institutes (papers and discussions being confined entirely to the apiary) at the following places and dates: Batavia, Genesee Co., Dec. 13; Canandaigua, Ontario Co., Dec. 14, 15; Romulus, Seneca Co., Dec. 19; Cortland, Cortland Co., Dec. 20; Auburn, Cayuga Co., Dec. 21; Geneva, Ontario Co., Jan. 10."
>
> Chapinville, N. Y., Nov. 20, 1899. W. F. MARKS.

I should really like to attend some of these institutes, but I fear it will not be possible for me to do so.

WHAT TO DO WITH BADLY MASHED COMB HONEY.

WE lately received a shipment of comb honey, and in this was a lot that was about as badly smashed as it could be. Some of it was so jammed and mangled, if I may use that word, that it was not even fit to put out for chunk honey. The better part of it we placed in wooden butter-dishes, and sold for chunk honey. The rest we put into a large cheese-cloth bag and then suspended it over a tub. It hung thus over night, and the next morning the liquid portion of the honey had all run out, leaving practically nothing but dry combs and pieces of combs in the sack. Of course, if there had been sealed honey it would not have drained ; but that to which I refer was so badly smashed there were no cappings over the cells. The particles of wax floated on the surface of the honey, leaving the clear liquid portion of it to settle at the bottom, and strain through the cheese-cloth. In the morning we had a bag of dry bits of comb, or almost dry, and a tub of clear extracted honey.

BEGINNERS' QUESTION BOX

BY E. R. ROOT

I. S. B., Ark.—We do not recommend Hoffman frames for Southern climates, or any locality where propolis is deposited very freely. Our staple-spaced frame should be used in places where bee-glue is very plentiful.

H. E. W., Cal.—You can not very well rear queens before warm weather sets in. You can do something at it, however, during cool weather, providing the hive is warmly packed in chaff or some other equally good material. Next spring bees should be fed a little daily—preferably with warm feed ; then proceed as described in Queen-rearing in the new edition of our A B C book.

W. C. B., Mich.—I would not feed sorghum molasses or any other cheap stuff to the bees for winter food. As a general rule it may be said that granulated sugar, for the money, contains more real food or sweetening for the bees than any thing else. For our locality we would feed up along until September or October, for the bees should have a chance to ripen and seal their stores about a month before actual freezing weather comes on.

R. S., Ont.—In estimating the stores that a colony should have, one should always figure that a syrup fed half and half (that is, half water and half sugar) is quite thin, and when thickened down by the bees it will stand in the proportion of about ¾ sugar and ¼ water. In counting on the necessary amount of stores, you will have to take into consideration this shrinkage. If you wanted to put in 20 lbs. of sealed stores I would feed at least 30 lbs. of sugar syrup, half and half.

F. B. C., Mich.—1. I would not advise you in November to extract all the honey out and then feed sugar syrup. Indeed, it is the usual practice to leave the honey sealed in the combs rather than extract it and put sugar syrup in its place. Good sealed honey is practically as good as sugar syrup sealed. 2. Bees would be likely to consume or waste some of the syrup during the process of feeding ; that is, for every pound of syrup fed you would be able to realize only about ⅔ or ½ of sealed stores by actual weight. 3. Bees would not consume much until actual winter set in. 4. The average amount consumed during the winter for outdoor and indoor wintering varies greatly. The stores may have to include the spring as well as the winter, or till such time as the bees can be fed safely again, providing the honey does not come in in time. I would recommend about 20 lbs. for outdoor wintering, and 15 for indoor wintering, of sealed stores.

OUR HOMES,

BY A. I. ROOT.

Ye are the temple of the living God.—II. Cor. 6:16.

The following was suggested while we were building a new Smead closet for the accommodation of the men and boys of our different factories :

Just now great progress is being made, not only in the arts and sciences, but (may the Lord be praised) our physicians and our boards of health are also making great progress in warding off disease, especially the contagious and pestilential kinds. We have not only driven the yellow fever from our shores, but we are banishing it surely, and with pretty good speed, too, from the tropical cities that have recently come under the jurisdiction of the United States. We are also making progress here at home in warding off consumption and other like terrible maladies. It has rejoiced my heart of late to notice that, in different cities, they are not only passing ordinances, but *enforcing* them, against promiscuous spitting on the pavements and in street-cars. Physicians tell us that the saliva is one of the first things to be contaminated by disease. For instance, if a patient suffering with consumption is permitted to spit here and there on the floor, and if this spittle dries down and is then set flying in the air when the room is swept, the germs of consumption *may be* communicated to every person who breathes the air. It is largely on this account that promiscuous spitting is being stopped by law. The city of Detroit, largely through the influence of Mayor Pingree, obliges people to expectorate in the gutters instead of on the walks, where it dries down, and is then set floating through the air when the walks are swept.

When Mrs. Root and I were in Los Angeles (the City of the Angels, you know) we often remarked, when we came out early in the morning for breakfast, before many people were up, that Los Angeles had the most beautiful pavements of any city on the face of the earth—that is, so far as we knew. The pavements were made of a peculiar white or light-colored cement. Every morning they were washed off and scrubbed, until they were almost white enough to sit down on. Well, before noon these beautiful white walks in front of the finest stores would be literally bespattered with tobacco spittle. Yes, there were chunks of tobacco and *whole puddles* of the filth so deep that a woman would have to raise her skirts and pick her way, especially if she happened to have on nice shoes and no rubbers. In that beautiful climate, rubbers would be hardly *needed* if it were not for the filthy men. Now, I do not know whether this City of the Angels (?) has adopted a reform like that of Detroit or not; but I shouldn't wonder if it had; and if so, I should like to visit there again. Mr. Rambler, will you please tell us about it? Surely you go through the beautiful city where you live, occasionally, in your rambles, do you not? I see by the papers that in San Francisco they put a man in jail just because he *persisted* in spitting on the floors of the street-cars. Yes, and he was a *millionaire* to boot. May God be praised for this bit of news, that millionaires are expected to obey the laws—especially those pertaining to health, just the same as anybody else. Truly we are progressing.

Do some of you think I am cranky in my notions that so trifling a thing as spitting on the walks or floors of a room is going to bring fevers and consumption? Why, my friend, the very latest method of determining whether a patient has consumption or not is by sending some of his spittle to a competent physician. Whenever the lungs are affected with tuberculosis the spittle shows it at once. Furthermore, our dailies have just given us an account of several clerks who had, one after another, contracted quick consumption in a certain office where many book-keepers were employed. The doctors finally traced the cause to a certain book. A clerk who died with consumption had been in the habit of wetting his thumb in his mouth every time he turned the leaves of that ledger, until the book had become a veritable pest-house of disease, communicating the germs to several clerks who used it.

Now, boys, do not feel hurt or offended when I make a practical application of this subject. At this very minute, while I write, in our Smead closets where we have expended a great amount of money in making a closet absolutely free from smell (and that *might* be kept as neat and sweet, almost, as a dining-room) there are just piles of filth, the accumulation of the work of tobacco-users. If it were on the floor alone we would not say much about it ; but you will all bear me out when I say that it is on the walls, on the shutters that afford privacy, on the pipes, and almost every thing else. Perhaps you ask me if I am not ashamed of myself for *letting* things get in such shape. Yes, I *am* ashamed ; and I am not only going to ask God to forgive me, but I hope that, before these lines are in print, things will be in better condition ; and then I want you to help me keep them so There are boxes of sawdust in every apartment of the closet; but the expectorators seem to have a dislike, some way, for spittoons. I provided them with the expectation of having the boxes of sawdust burned up when they became filthy. But I have neglected it for the reason I really disliked to ask any good clean boy, who does not use tobacco, to carry them down to the furnace and dump them in. And, by the way, I feel pretty sure there is not a man or boy in my employ who really wants to be called on to carry away the filth deposited by the tobacco-user. There may be *poor women* needing work who would do it, but I am not going to ask them to do it.

Now, boys, I do not usually ask much of you — that is, in the way of curtailing your liberty. Of late I have not said much about tobacco, though God knows I have felt a good deal. We have not had any smoking on our premises, because the insurance companies back us up in our objection to it. And now the Ohio State Board of Health, I am sure, will bear us out in declaring we can not have tobacco spittle on the floors of our premises, even in *closets*. The one who *must* use tobacco in such quantities as to expectorate such a large amount of filth must provide himself with a spittoon, and empty it or burn it up when it gets to be unsightly. The health of all of us—in fact, your own health—depends upon it. I am not suspicious enough to believe that any one of you "laughs in his sleeve" when he thinks The A. I. Root Co. can not tell *who* does the spitting. We can easily tell by having a janitor employed to watch every one who goes into the closet and leaves it. In fact, this is done in many of our large hotels and in other places where the closets are largely frequented, and where it seems impossible otherwise to get rid of this sort of vandalism. I have not talked about turning anybody off, mind you, no matter how much tobacco he uses; but I *am* thinking of dismissing the men who are not only killing themselves but seem determined on killing their shopmates, or at least subjecting them to these things I have talked about in the fore part of this paper—that is, if there is no other way. Every doctor in the land will bear me out, even if that doctor does use tobacco himself to excess. We simply ask that you forbear spitting on the floors anywhere. If you have a cold, and *must* expectorate, just step outdoors. Doors are near you all. When you go to the closet, deposit the filth which is in your mouth in the places provided for the filth that nature throws off. Surely you can hold it in your mouth a minute or two at a time, under special circumstances. From personal acquaintance I am sure most of you are with me in my great desire to have all our rooms not only comfortable but pleasant-looking. We all enjoy seeing visitors go through our working-rooms, and we like to see them admire our arrangements Well, I want to be able to take our visitors into our closets and show them what we have been doing *there* in the line of modern improvements. And, by the way, there is one thing I had almost forgotten. You can gauge the intelligence of a people almost anywhere on the face of the earth by visiting their closets. When our stalwart friend Ivar S. Young was over here from Norway some years ago to study up advanced bee culture and some other things he told me frankly that, in the way of closets and arrangements for personal comfort, America was far behind his own country.

Now, dear friends, I should like to know how many are with me in this new undertaking. From personal observation I judge that ninety out of every hundred of our people will say I am exactly right. Five more out of the ten remaining can *perhaps* be persuaded to agree with me. I am sure there are not *more* than five or six among our 150 or so employees who help *make* these filthy places, and who think it is the right and proper thing to use a closet in this way; and I am rather inclined to think that these five or six persons, after reading what I have said, or the greater part of them, will turn in and help us fight the good fight for health, decency, and every thing else that is good and pure. A great many times it is an excellent thing to have business contracts down in black and white; and with this end in view I am going to inclose a card in this envelop, to be considered when you get your pay Saturday night. If you feel like making any suggestions or additions to what I have said, I should be exceedingly glad to hear them. If you want to present the other side of the matter—that is, if there *is* any other side—I want to hear that too. If you can not do any thing more than to give me a little word of encouragement, please do that, even if it is nothing more than writing "O. K." on the card and signing your name to it. By this means I think we shall be able to manage without having any janitor at all; but if it is really necessary to go to the expense of hiring a janitor to do nothing but watch the closets, the question is, who is going to pay this janitor for his services? Surely not those who have been pained and offended by such places of filth for several years past. Will it be too hard to say that those who expectorate on the floor must pay the janitor? I hardly need tell you that this whole thing was suggested to me while we were building this new Smead closet. When I thought of the money it is going to cost, and the time and money that have been expended on it (we paid $100 to the patentee for the *right* to build the closet), I felt as if I *could not* have it share the fate of our old closet right near our office, that has been in use for the last nine years.

Let me explain to the readers of GLEANINGS that the Smead system is an arrangement whereby a current of hot air evaporates or dries out the moisture from the accumulation in the closet. This is secured by keeping up a draft of hot air by means of a little fire below, once a day or oftener. In our case we have in the base of our building a coil of pipe heated by means of exhaust steam from our factory. Just above these hot pipes is a floor of dry hot bricks supported on iron bars; then a tall chimney keeps a draft of hot air constantly passing over and under these bricks. The chimney makes draft enough so that, when one of the lids is open anywhere in the closet, the air sucks down through the floor, passing off up the chimney. In this way there is never any smell or foul gases. The chimney is tall enough to deliver the impurities so high up in the air overhead that they are carried off by the wind, and never make themselves known to anybody.

Now, while every home in the land may not be able to make use of an expensive apparatus such as I have described, every home in the land can have a neat, tidy, and pleasant closet. The use of dry earth, which is now so well understood, is many times the safest and easiest method of getting rid of unpleasant smells, and materials disagreeable to handle. Where there is a safe outlet for the sewage, without inconveniencing your neighbors, a water-closet is a very nice thing. I have described these so fully in former numbers that I need not go over the ground here.

Permit me to say that, in traveling about the country. I have found many really beautiful closets, even in country homes—many that were carpeted, and had tasty and wholesome pictures on the walls; and in some there were scripture texts. Surely cleanliness *is* next to godliness; and when we begin to discover that cleanliness in the way I have mentioned has a direct bearing on this matter of health in warding off pestilences, is it not one of the bright and encouraging things of the present age that we are surely, though perhaps slowly, getting over this fashion of being heathenish and savage when it comes to looking after these matters that *must* be attended to every day of our lives?

In some of my writings heretofore I have alluded to the fact that we have occasionally, or once in a great while, been annoyed by obscene and impure scribbling in closets. At the present time I believe this is pretty much done away with. In this case it is likely the offender thought we had no means of telling who did it. Poor deluded soul! I presume it never occurred to him that the man or boy who *will* do a thing of this kind has it written almost on his forehead; because we know the boys who would *never* do a thing of this kind; and it is almost equally true that we know just what boy *might* be guilty of such work. The all-seeing eye of the great Father above knows all about it; and, besides this, good men and women of mature age can almost always judge pretty quickly who it is, when such work turns up

Since the above was in type I notice by the papers that the city of Des Moines, Ia., has passed an ordinance making it a $10 fine to spit on the sidewalks; and our stenographer adds that the city of Marion, O., has also such an ordinance, and he thinks they were among the first to inaugurate this reform. If the different cities both north and south, and east and west, should get into a strife as to who should excel in clean pavements, how refreshing it would be!

HEALTH NOTES

BY

A. I. ROOT

MAGNETIC HEALING, VITAL SCIENCE, ETC.

Well, we are getting at the secret of Electropoise, Oxydonor, etc. We all have to confess it is a great mystery how such senseless traps could perform the cures and bring forth the astounding testimonials that they do; and ministers, editors, and some doctors, I am sorry to say, declare the thing *did* cure just because of those testimonials. But just now it begins to transpire that there are still *more* astonishing cures performed without any apparatus or any medicine; and the doctor does not have to see the patient at all, and in some cases he does not even have to know what the matter is. You pay him your five dollars, without saying a word, and he cures you without saying a word or even writing a letter. Several have inquired about the great Prof. Weltmer, of Nevada, Mo. By the way, Missouri seems to be specially prolific in this kind of healing. Prof. Weltmer not only heals every disease, but he takes *pupils* and teaches *them* the art, and he never fails to teach anybody to do it right, and the pupil never fails to cure any disease *whatever.* Am I getting it too strong? Well, here is what I copy from the Weltmer circular:

> The results of learning this profession will be that you can heal every known disease; can heal diseases that can not be healed by medicine or any other method, and you can earn from $10 to $50 per day. . . . . Every student can perform the *cures*, and when you can do this *you will get the business.*

You see, I thought of taking taking a course of lessons, so I wrote to the professor, asking him some questions. He sent me a nice long letter, "dictated by Prof. Kelly." He thought I would not know the letter was a *printed* one, but I did. He winds up the letter by saying:

> Our terms are cash in advance; no other proposition will be considered a moment.

Now, if there is anybody among our readers who still insists that there is either sense or science in the above, let him ask the family doctor, the minister, the schoolteacher, or anybody who is at all posted, what such claims mean; and notwithstanding these absurd statements, there are people who still insist that men are being cured by the wholesale by such professors. By the way, this Prof. Weltmer sends out quite a magazine. This magazine has pictures all through of high-toned patients he has cured, and of his beautiful large buildings that might grace a State university. If these pictures are photos of his real buildings he certainly has got a lot of money from somewhere to start his medical schools. I do not find any such institution quoted by either Dun or Bradstreet. Here is another:

> *Dear Bro. Root:*—Is Dr. Carson, who treats diseases by what he calls "vital science," a humbug or not? He keeps the temple of health, Carson City, Mo. I say "brother" Root, because I believe you to love your neighbor as yourself. SUBSCRIBER.

You see I am obliged to answer the above in print because our friend did not give his name. Well, in the first place I can not find any such place in Missouri as Carson City, so I could not hunt up any thing about this Carson. I think very likely that he, with his "temple of health," is another Weltmer. By the way, I forgot to mention that it costs only $5.00 a month to learn how to "doctor," so you can cure any disease that ever afflicted anybody on the face of the earth.

One moral we may gather from all the above is this: There *must* be a lot of people in the world who *think* they are sick. I believe they are honest in thinking so, otherwise they would not hand over five or ten dollars as readily as they do. Yes, they think they are sick. Then these professors get five or ten dollars for simply telling them there is not any thing the matter with them at all. It is only a notion they have got in their heads; and these people furnish the money for the Electropoise men and the health institutes to build up these great establishments, and to permit the "Prof." to revel in luxury and ease.

ROBBING SICK PEOPLE.

On page 813 I closed my talk about robbing sick people, with the following words in regard to giving cash in advance, no matter how responsible or reliable the person is who gives the order. Here is the story:

The boy who helps in the garden, and acts as messenger to go to and from the postoffice, was crippled at birth. His mother came to see me when he was quite a little fellow, and wanted to know if I could not find a place for a little unfortunate crippled boy. I did find him a place, and he has been with us until he is now almost a grown-up man. One of his legs is about two inches shorter than the other; but this does not seem to interfere with his riding the wheel, in the least, and in this way he makes himself quite useful. Some years ago an agent visited him and tried to get him to invest $35.00 in an artificial foot that would permit him to wear a common shoe, and walk as straight as anybody. When I found out about it I wrote the firm. They are called the Improved Extension Shoe Co., Cincinnati, O. They said they could fix him out all right; and if they did not succeed it was to cost him nothing; but they could not furnish the shoe, even to a well-known firm like our own, without cash in advance. I remonstrated, but they declared it was their invariable rule with everybody. But they promised fair and square to refund the money if they could not make the thing work. They were very courteous and polite until they got the money and sent the shoe. After that, they rather seemed to lose interest in the matter. There were delays and mistakes; and after we had invested quite a little more money (besides the $35.00) in sending him to Cleveland, to let one of their agents make exact measurements, there was a long delay, and then they said the agent had *lost* the dimensions that cost us so much trouble to get. Finally they got a shoe about right — at least he started off and walked with it pretty nearly as straight as anybody; but it hurt his foot from first to last so that it was entirely impossible for him to get along with it, or do any thing with it on. It seemed to crowd his whole weight down on to his toes. This machine that cost $35 00 seems to me ought not to cost more than about $3.50; but I was quite willing to pay this price provided the boy could be enabled to go around like other people. I explained to them that I furnished them money solely to do a boy a kindness, and wanted them to take the apparatus back at some price; but, like the Electropoise folks, a thing that cost $25.00 (or $35.00, if you choose) when you bought it, is not worth even 25 cents when you want to sell it back.

Now, then, my advice is, not to send cash in advance for any of these new and untried novelties — that is, unless the amount is so small you can well afford to lose it. If you yourself have no financial standing and rating in commercial reports, ask your merchant or grocer, or whoever you do business with, to manage the thing for you. Any firm which has a really meritorious article, will be glad to send it to any responsible business man; and you probably know that any farmer with even a *fairly* good credit back of him can get almost any agricultural implement, not to be paid for until he has tried it. This course of doing business will sift out the humbugs and swindles very speedily.

In regard to appliances for the deaf (see p. 812, Nov. 1st issue), I would advise you to consult your family physician; for as a rule he is informed on these matters, and knows all about ear-trumpets and similar aids for deaf people; and if the case is beyond his experience and skill he can probably tell you better where to go than anybody else. There is no end of frauds connected with doctoring the eyes and ears. Beware of them.

Mr. Root:—In your August 15th issue, page 623, under Health Notes, you quote from a letter from P. Hostetler, and further on make some comments. In this connection I wish to enter a "Plea for the Physician." I am a graduate of the Jefferson Medical College, having spent several of the best years of my life there, and am as familiar with the wards of the above-named hospital as I am with my own house. The part I most object to is where "the charge of $400 or $500 is a shame and a disgrace to the present age."

The Jefferson College hospital is kept up by endowments, and by the fees paid by students; and cases of unusual interest and of the proper kind are selected for operation before classes *free of charge*, except, perhaps, for their board of $1.00 per day. You don't suppose for an instant that any hospital could care for, board, and supply surgical dressings and medicines for the insignificant sum of $1.00 per day, and long keep open doors, unless there were some other source of revenue.

Speaking from my personal experience, $400 or $500 is not a cent too high for such capital operations; and the surgeon who is capable and fitted for their performance can not afford to do them for less. They are not common nor of every-day occurrence, even in the largest hospitals. I have been in practice since 1888; and after the first five years I have only ill health as a reward for my labors.

Idaho Falls, Idaho, Sept. 2. B. F. JONES, M. D.

My good friend, I stand, at least to some extent, corrected. You remember I expressed surprise that a surgical operation like the one mentioned could be performed for so small a sum of money. It did not occur to me that the circumstances were such as you mention. Of course, I am familiar with this kind of work since you mention it. The skillful physician or surgeon who saves a life that would have been lost, without question, but for his skill, certainly deserves a fair reward. What I had in mind, when I uttered the words you wrote, is charging enormous sums and not benefiting them after all. I do not know that surgeons very often deserve to be called "quacks;" yet cases have come under my notice where I think surgeons, who perhaps had skill, were guilty of criminal carelessness and *indifference* to human life. Our daily papers are giving, sometimes, reports of cases of this kind. What I had specially in mind is described in the following:

I read your articles in GLEANINGS about Electropoise. I have one for which I paid $25.00. I used it faithfully five months, but received no benefit. It may help some folks by stopping their filling their systems with medicine and giving nature a chance to work. What I would stop is the specialists. They put out glowing advertisements, and claim they can do wonders, and jew a person out of $500 or $1000 before they do any thing for them, and then leave them worse off than when they began. I paid one noted specialist $300 in advance to cure me, without specifying any particular time. He sent me medicine for a year, and at the end of that time I was in bed suffering extremely; and instead of medicine he sent a letter asking $200 to treat me another year. He *reduced the price*, seeing that I was an old patient. I would gladly give his name and place of business, but may be I have no right to do so, as he has license to practice in Ohio, and runs a large institute on the money he robs the sick of. If any thing is to be cried down, I say let it be those quacks who charge a large price in advance. My husband has paid out many hundred dollars on false promises to get me cured, and I am no better off, and, as a last resort, we are trying a warm climate, and, with God's help, it may be successful. If you desire to print any portion of this, and any invalid wishes to know about this particular institute, I will tell him willingly; but I do not care to have my name published. MRS. O. A. D.

San Diego, Calif., April 6.

DOCTORING WITHOUT MEDICINE; CAUSE AND CURE OF RHEUMATISM—AT LEAST ONE KIND OF THAT DISEASE.

Friend Root, as you are always doing something to benefit your fellow-men I have a little experience to relate to you which you in turn can give to your readers *free*, as I have no patent on it. I have been afflicted with acute and sciatic rheumatism for over 25 years; but for the past year I have been entirely free from it. The year previous to the past one I was laid up entirely. I had tried every thing — patent medicines, electricity, and prescriptions from several doctors, but they were all failures. For several reasons I came to the conclusion it was all caused by the *sweets* I was taking into my system. In September, 1898, I discarded sweets entirely, and in three months my rheumatism was completely gone. About a month ago I was extracting honey, and I ate quite freely of it, for one or two days, when my old symptoms of rheumatism returned, so I *know* the rheumatism is caused by the uric acid which comes from eating sweets. All doctors agree that sweets turn to uric acid, and uric acid causes rheumatism. Some 30 years ago I always had this complaint while making maple sugar; but as soon as "sugaring" was over my rheumatic trouble was gone.

Berlin, Wis., Oct. 30. E. C. EAGLEFIELD.

My good friend, you have struck on one of the great points in the Salisbury treatment. Where one's digestive apparatus gets started into acid fermentation, sugar, more than any other one article of diet, feeds the malady. It is just like putting something sweet into vinegar. The beer-plant, as you may know, will grow and thrive so long as it has the least bit of sweet of any kind added to the water in which it is growing. Now, the Salisbury treatment cuts off not only the sugar but the starch also; and starch is easily converted into sugar by chemical means or by the digestive apparatus; but in my own case, and I think that of most people, sugar is more apt to feed a sour stomach than starch or starchy foods. Among all vegetable foods, dry bread or zwieback is perhaps nearest to meat; but a beefsteak diet contains absolutely no sugar or starch, and it is, accordingly, the only food—that is, the lean-meat diet is almost the only diet known—that contains neither starch nor sugar, and is, therefore, calculated to *starve out* this fermentation in the bowels. I am sorry to say, however, that not *all* kinds of rheumatism yield to this treatment; but a great many forms of rheumatism, as well as ever so many other distressing results of indigestion, may be remedied by cutting off all sweets. I have known cases where just omitting the sugar in coffee has put a stop to daily headaches. I am glad to know the world is finally catching on to this most important factor in diet. Now, please remember I do not condemn the use of a reasonable amount of sugar for *everybody*. Where sugar is perfectly assimilated and digested, as it is, perhaps, with most healthy people, a proper amount with the meals gives strength; but a good many times, eating less sugar will stop headaches and other like results of indigestion.

While speaking of rheumatism, permit me to say here that when I was in Fostoria recently, my nephew, Geo. M. Gray, called my attention to an important case. A man who had for years hobbled about on crutches, badly crippled up with rheumatism, had a son who is now conducting a bicycle-repair shop in Fostoria. Well, the old gentleman got an idea that, if he could get started on a wheel, he could get about and greatly relieve himself from the fatigue occasioned by standing on his crippled legs. Of course, the boy took a great deal of pains to teach his father how to run a wheel, and they two together succeeded admirably. Now, can you guess the sequel? The wheel-riding gave the old gentleman outdoor exercise, a good appetite, and his rheumatism kept getting better and better, until at the present time he goes about walking erect, without any crutches or even a cane. May God be praised for these lessons that are all round about us, teaching us how to "doctor" ourselves "without medicine."

GOOD FOR THE "ROOTS."

I have not yet been able to find out just what relation, if any, Sec. Root is to the Roots here in Medina; but the Root Genealogy, which is a pretty good-sized book, did, at the time it was printed, connect pretty nearly all the Roots in the United States, if not all. But what pleases me just now is the following, which we also clip from the *Advance*;

> The new regiments sent to Manila had no chaplains; but Secretary Root has ordered all the available chaplains in the army to the Philippines, ten in all.

The above is certainly encouraging, for it is only a little while since we were told that the beer-canteen was to have a free swing in our new possessions, in the army, but that all the *chaplains* were to be *dispensed* with. I was wondering whether the recent objection to chaplains had not arisen because they would naturally make such a vigorous protest against the introduction of beer. Well, Sec. Root has reinstalled the chaplains; and may we not hope that he will soon use his influence to have the law enforced regarding the canteen business?

SHALL WE HOLD A JOURNAL OR PERIODICAL RESPONSIBLE FOR THE CHARACTER OF ITS ADVERTISEMENTS?

Thank God, there are several periodicals besides GLEANINGS that think a home paper ought to exclude advertisements from the whisky men. We clip the following from the Chicago *Advance*:

> The descriptive sub-title of *Harper's Weekly* is, "A Journal of Civilization," and it is a low grade of civilization, if we are to judge by the advertisements of liquor-dealers which appear in that journal. One advertisement in *Harper's Weekly* furnished by the brewers of "the beer which made Milwaukee famous," declares that since Manila was occupied by the Americans they have shipped to that city two hundred and nineteen carloads of beer, making in all a train a mile

and a half long. And this is the liquid "civilization" advertised, for a consideration, in *Harper's Weekly*, yes, and *Harper's Monthly*. The advertisement states that, "wherever civilization has gone, S— beer has followed" So much the worse for civilization; for since that much-advertised beer began to arrive in Manila the saloons have increased from a few to more than four hundred and thirty.

A LITTLE CIRCUMSTANCE (?) AT THE HOME OF THE HONEY-BEES.

On the day when the first issue of GLEANINGS came from the press (27 years ago), and was handed over for the inspection and approval of your old friend A. I. Root — well, before night of the same day a little blue-eyed stranger came into the home of the Root family. She was afterward called "Blue Eyes," as some of you may remember. By the way, all the fault I have yet heard concerning the new A B C book was because the picture of Novice and Blue Eyes was left out. Well, the picture of Novice then, as he held Blue Eyes in his lap, does not look very much as he does now, for he is a white haired and white-bearded old man now—at least he will be 60 on the 9th of next month (December); and Blue Eyes is a grown-up woman with a home of her own, and — oh dear me! she has a blue-eyed *boy* of *her own*, born Nov. 2. And even if that boy is not quite five weeks old yet, I presume she would consider his picture of as much consequence, or more, than even that of herself or anybody else, for that matter. I believe it is universally conceded there can be no real fully developed prosperous colony of *bees* without daily accessions of *young* bees; and in a like manner it seems as though the Root Co., in order to stand firm and solid through the coming ages, needs in a like manner occasional reinforcements of young blood. Oh! I must not *forget* to add that the father of this blue-eyed boy, Mr. A. L. Boyden, Secretary of The A. I. Root Co., is fast getting to be one of the *principal* business managers. He has known all about bees from his childhood, and it is *my* impression that he now knows more about some departments of our growing business than even John and Ernest.—A. I. R.

THE MAN WHO DRINKS.

The following is credited to the Memphis *Commercial Appeal*. We say a hearty amen to it, and pass it along:

> The business world recognizes that no man who drinks is as good as he would be if he never drank. Time was when in certain lines of business it was considered necessary to drink. Quite the contrary is the case now. Even saloon-men prefer barkeepers who do not drink the liquids they sell All the fairy tales about the great things people do when under the influence of liquor have been exploded. The orator who must be intoxicated in order to make a speech is no longer here, and he has never been here. The lawyer who can not plead a case or cite an authority without spending the night before in a barroom has gone to visit the pale glimpses of the moon, and he has always been gone. The writer who produces a great poem or a great essay while maudlin was removed from this planet before the command "Let there be light!" was given. The book-keeper, clerk, mechanic, salesman, artisan, young or old, is not at his best while under the influence of liquor, and he is not as valuable to himself, his employer, or society. In the race of life the temperate man has the best of it; the drinking man is handicapped. The sober man is always an improvement on the drunken man.

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.]		[Price without postage.
8	Bible, good print, neatly bound	20
10	Bunyan's Pilgrim's Progress**	50
20	Illustrated Pilgrim's Progress**	75

This is a large book of 425 pages, and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25 cents more.

6	First Steps for Little Feet	50

By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound and fully illustrated.

	Christian's Secret of a Happy Life,** 50c; cloth	1 00
3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*	10
1	Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper	5
2	Same, board covers	20
5	Same, words and music, small type, board cov.	45
10	Same, words and music, board covers	75
3	New Testament in pretty flexible covers	05
5	New Testament, new version, paper covers	10
5	Robinson Crusoe, paper cover	10
4	Stepping Heavenward**	18
15	Story of the Bible**	1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

	"The Life of Trust," by Geo. Muller**	1 25
5	Tobacco Manual**	45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

15	A B C of Bee Culture, cloth	1 10
	Advanced Bee Culture, by W. Z. Hutchinson	50
3	Amateur Bee-keeper, by J. W. Rouse	22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I., §	2 36
21	Same, Vol. II., §	2 79
	Same, Vols. I. and II., postpaid	5 25
10	Bees and Honey, by T. G. Newman	90
10	Cook's New Manual, cloth	1 15
5	Doolittle on Queen-rearing	95
2	Dzierzon Theory	10
3	Foul Brood; Its Natural History and Rational Treatment	22
1	Honey as Food and Medicine	05
15	Langstroth Revised, by Chas. Dadant & Son	1 10
15	Quinby's New Bee-keeping	1 40
	Thirty Years Among the Bees, by H. Alley	50
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey-bee, by Thos. William Cowan	95
	British Bee-keeper's Guide-book, by Thomas William Cowan, England §	40
3	Merrybanks and His Neighbor, by A. I. Root	15
4	Winter Problem in Bee-keeping, by Pierce	46
	Bienenzucht und Honiggewinnung	50

Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.

MISCELLANEOUS HAND-BOOKS.

5	An Egg farm, Stoddard**	40
5	A B C of Carp Culture, by Geo. Finley	25
5	A B C of Strawberry Culture,** by T. B. Terry	35

Probably the leading book of the world on strawberries.

3 | A B C of Potato Culture, Terry**........................ 35
This is T. B. Terry's first and most masterly work.
| Barn Plans and Out-buildings*..........................1 50
| Canary birds, paper 50
2 | Celery for Profit, by T. Greiner** 25
The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.
15 | Draining for Profit and Health, Warring.........1 35
10 | Fuller's Grape Culturist**...............................1 15
8 | Domestic Economy, by I. H. Mayer, M D.** ... 30
This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10 | Farming for Boys*...1 15
This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.
| Farming with Green Manures, postpaid........... 90
7 | Farm, Gardening, and Seed-growing** 90
| Fungi and Fungicides, paper, 50c; cloth...........1 00
12 | Gardening for Pleasure, Henderson*.................1 35
12 | Gardening for Profit**.......................................1 35
8 | Gardening for Young and Old, Harris**...........1 25
This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.
3 | Grasses and Clovers, with Notes on Forage Plants 20
This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.
10 | Greenhouse construction. by Prof, Taft**.........1 15
This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.
15 | How to Make the Garden Pay**........................1 35
5 | Garden and Farm Topics, Henderson**............ 60
| Gray's School and Field Book of Botany...........1 80
5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper*............................ 20
5 | Gregory on Onions, paper*................................ 20
The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.
| Handbook for Lumbermen.................................. 05
10 | Household Conveniences.....................................1 40
2 | How to Propagate and Grow Fruit, Green*...... 15
10 | How to Get Well and Keep Well....................... 90
An exposition of the Salisbury system of curing disease by the "lean-meat diet."
2 | Injurious Insects, Cook... 10
10 | Irrigation for the Farm, Garden, and Orchard*1 10
By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.
7 | Market-gardening and Farm Notes.................. 75
10 | Success in Market-Gardening* 90
This is by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drouth threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.
3 | Maple Sugar and the Sugar-bush**.................... 32
4 | Peabody's Webster's Dictionary......................... 10
Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers...................................... 30
6 | The same in cloth covers.................................... 65
| Nut Culturist, postpaid..1 50
3 | Onions for Profit**... 40
Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.
| Our Farming, by T. B. Terry**................ 1 50
In which he tells "how we have made a run-down farm bring both profit and pleasure."
This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming, before the world at the present day. The price is $2.00 postpaid, but we have made arrangements to furnish it for only $1.50.
We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.
1 | Poultry for Pleasure and Profit.**...................... 10
8 | Practical Floriculture, Henderson.* 1 10
10 | Profits in Poultry.* 75
2 | Practical Turkey-raising 10
By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.
2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character.** 15
1 | Silk and the Silkworm 10
10 | Small-Fruit Culturist, Fuller 1 10
2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown................ 08
This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.
10 | Talks on Manures* 1 35
7 | Ten Acres Enough 75
10 | The New Agriculture; or, the Waters Led Captive (a $1.50 book) 40
2 | Treatise on the Horse and his Diseases........ 10
5 | Tile Drainage, by W. I. Chamberlain.......... 35
Fully illustrated, containing every thing of importance clear up to the present date.
The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, Ohio.
3 | Tomato Culture 35
3 | Vegetables under Glass, by H. A. Dreer**...... 20
3 | Vegetables in the Open Air.............................. 20
This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.
3 | Winter Care of Horses and Cattle.... 25
This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.
3 | Wood's Common Objects of the Microscope**.. 47
8 | What to Do and How to be Happy While doing It, by A. I. Root 42

The A. I. Root Co., Medina, O.

Special Notices by A. I. Root.

PUTTY-BULB.

For setting glass for greenhouses; also used as an insect-powder gun. The price will be 25 cts. instead of 15 as formerly. By mail, 5 cts. more.

NEST-EGGS OF POLISHED WOOD.

These are considerably cheaper; in fact, we can quote them 10 for 10 cts.; 100, 75 cts. If wanted by mail, only 1½ cts. each additional for postage.

ADVANCE IN PRICE OF COLD-FRAME OR HOT-BED SASH.

The present price will be, one sash in the flat, for sample, without glass, 85 cts.; five in the flat, 80 cts. each; 10 in the flat, 75 cts. each. Glass, 8x10, just right for the above, per box of 90 lights, $3.00.

ADVANCE IN THE PRICE OF PEAS.

Both Alaska and Premium Gem will be, instead of the catalog price, ½ pint, 5 cts.; quart, 15 cts.; peck, $1.00; bushel, $3 50. American Wonder will be: ½ pint, 8 cts.; quart, 20 cts.; peck, $1.25; bushel, $4.50. All other kinds will be as in the catalog.

WAX BEANS, SCARCE AND HIGH-PRICED.

You will find almost all kinds of wax beans and snap beans of any sort quoted in the catalogs at $1.50 to $6.00 a bushel; and a good many times when you send an order the seedsman says he can not send any, even at that price. I know, because I have been trying to buy them for our Florida customers. But we have just now purchased 11 bushels of Davis wax beans directly from Eugene Davis, the originator. We can furnish these, while they last, for only $4.25 per bushel. For smaller quantities, see our catalog. We have also received from friend Davis two bushels of red kidney beans. Price $3 00 per bushel.

GRAND RAPIDS LETTUCE SEED.

We have just purchased from the grower 25 lbs. of extra nice new seed. Price will be, ounce, 5 cts.; 1 lb., 50 cts.; 5 lbs., $2.00.

Since the above lot was purchased, we have had an opportunity of testing the seed, and know that almost every seed will grow. As we go to press it is just putting out its second leaves, and we believe it is about as true a strain of Grand Rapids as any thing we have ever sold.

Now is the time for starting lettuce to be grown under glass. A few days ago, on one of my recent wheelrides near Berea, Cuyahoga Co., O., I noticed three fair-sized greenhouses side by side, and they were all used entirely for growing Grand Rapids lettuce. The proprietor, pointing to the beautiful crop, said to me, with commendable pride, "This has all been grown without a bit of heat except what came from the sun. Look! there is not a green fly; and where you use sun heat and nothing else you won't have any." I mention this for the benefit of those who live far enough south so they can grow a crop almost (if not entirely) without the aid of either flue, steam, or hot water.

LEE'S FAVORITE POTATO.

Since prices were given in table in our issue for Nov. 1, we have purchased of a neighbor a lot of Lee's Favorite. Our experiment station pronounces these, while not quite as early as the Early Ohio, very much more prolific, and No. 9 in quality, Snowflake being No. 10. In consequence of having bought them low we can make the price on these, peck, 25 cts; ½ bushel, 40 cts.; bushel, 75 cts; barrel, $2.00. This low price is only for immediate orders. The stock will not probably hold out very long at this price.

MAULE'S COMMERCIAL.

This potato is remarkable for its great yield and large size. T. B Terry, of Hudson, Ohio, on his first attempt, grew something like two bushels from one potato; and these two bushels were, some of them, just immense. I paid $10.00 for a single potato just two years ago, and from that one potato harvested this season 40 bushels. Of course, I had the greenhouse to aid me the first winter; and among the 40 bushels there were quite a few that weighed over 2 lbs. each. It is real fun to see these great potatoes puff up the ground along in the fall when they commence all at once to expand and swell out. Had it not been for the severe drouth I think my crop might have been doubled. If this potato were as handsome in shape as Carman No. 3 I should consider my 40 bushels worth $10.00 each. Perhaps in different soil the shape might be better. So far as my experience goes they are not only great, but awkward-shaped, and have, perhaps, the deepest eyes of any potato we grow. Very few reports have come in from the seed we sold last spring, so far; but here is one of them that indicates they are great yielders in other localities also:

I raised 2½ bushels from the 2 lbs. of Commercial which I got of you last spring. Mont Wyrick.
Cascade, Iowa, Oct. 26.

SEED POTATOES AS PREMIUMS.

Any one sending $1.00 for Gleanings, and asking for no other premium, may have 25 cents' worth of potatoes. And any one who is a subscriber, and who sends us $1.00 and one new name may have 50 cents' worth of potatoes; but if the potatoes are wanted by mail the subscriber must pay postage. Please notice we give potatoes as premiums, but we can not afford to give *postage stamps*.

The most important novelties in potatoes for 1900 are the two new ones, Commercial and Russet. Fifty cents' worth of these would be one peck. Of course, these would have to go by express unless you are ordering other goods, when the potatoes could go with them by freight. But for the benefit of those who want just enough by mail to test them, or to get a start, we will send ½ lb. by mail *postpaid* of either of the above to any subscriber, old or new, who pays for Gleanings one year in advance; or we will send ½ lb. postpaid by mail to any subscriber who sends $1.00 for arrearage on Gleanings, providing he mentions it when sending the money or making the order. Of course, we do not send potatoes to anybody unless he says he wants to have them. Now, then, friends, everybody who takes Gleanings can have enough potatoes to get a start, free of charge, of either of the above two kinds. Please do not ask us to send something else on these terms, because we are going to have a great lot of these done up in ½-lb. packages ready to mail; but we shall not have the other kinds thus put up, a large lot at a time.

ORDERING POTATOES NOW.

Of course, it is risky business shipping potatoes anywhere in December—that is, if you want as many as a barrel or more; but if you wish to send in your orders now to secure them before we run out of certain kinds, we will set them aside for you, and guarantee their safe keeping till next April. Then we will guarantee safe delivery from freezing. We mention this because many kinds are sold out already. See new table. We can, however, send half a bushel or a smaller quantity any time during winter by taking extra pains in packing. Potatoes by mail go anywhere any day in the year, without any danger of freezing—at least we have never had any losses, that we remember, in sending by mail all winter long.

Name. Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
Red Bliss Triumph	$ 18	$ 40	$ 25	$ 40	$ 75	$ 1 25	$ 3 00
Bovee	18	40	25	40	75	1 25	3 00
Lee's Favorite	15	35	20	25	40	75	2 00
E. Thoro'bred, Maule's	18	40	20	35	60	1 00	2 50
Early Ohio	18	40	25	40	75	1 25	3 00
Burpee's Extra Early	18	40	25	40	75	1 25	3 00
Freeman	18	40	25	40	75	1 25	3 00
New Queen	18	40	20	35	60	1 00	2 50
Maule's Commercial	30	75	20	50	85	1 50	3 50
Mill's Prize	15	35	20	25	40	75	2 00
Carman No. 1	18	40	20	35	60	1 00	2 50
Carman No. 3	18	40	20	35	60	1 00	2 50
Sir Walter Raleigh	18	40	20	35	60	1 00	2 50
New Russet	30	75	30	50	85	1 50	3 50
Manum's Enormous	18	40	25	40	75	1 25	3 00
New Craig	18	40	25	40	75	1 25	3 00

Seconds of any of the above will be half price.

We have sold out the seconds of the following kinds of potatoes: Triumph, Bovee, Carman No. 3, Lee's Favorite, and Russet.

Please notice there are no seconds at half price in potatoes postpaid by mail. The principal part of the price of potatoes by mail is for postage stamps; and Uncle Samuel does not have any second quality of postage stamps that he sells at half price. Another thing, when you go to the expense of paying postage on potatoes, you will naturally be supposed to want the very best and nicest that can be picked out.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., = = Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dept.
J. T. CALVERT, Bus. Mgr.

TERMS. $1.00 per annum; two years, $1.50; three years, $2 00; five years, $3 00, *in advance;* or two copies to one address, $1.50; three copies, $2.00; five copies, $3.75. The terms apply to the United States, Canada, and Mexico. To all other countries 48 cents per year extra for postage.

DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making this request when ordering.

RECEIPTS FOR MONEY. We send no receipt for subscription money. The change of the date on the little label shows you that the money has been duly received and credited. During December and January it sometimes takes us three or four weeks before the date is changed.

RATES OF ADVERTISING. These will be furnished on application.

Trial Subscriptions.

3 Months, 15c; 6 Months 25c.

We offer GLEANINGS IN BEE CULTURE to new subscribers three months for 15c, or 6 months for 25c. Renewals not accepted at these rates.

Clubbing Rates.

As an inducement for our subscribers to renew before the expiration of their present subscription, which saves us considerable time, we offer the following rates for Gleanings one year and a year's subscription to any of the following papers at prices mentioned:

For One Dollar Only.

Gleanings and your choice of the following:
American Agriculturist, with Almanac,
Orange Judd Farmer, with Almanac,
N. E. Homestead, with Almanac,
Northwestern Agriculturist,
American Poultry Journal,
Reliable Poultry Journal,
Agricultural Epitomist,
Farm and Fireside,
Poultry Monthly,
Poultry Keeper.
Farm Journal,
Farm Poultry.

For One Dollar and Ten Cents.

Gleanings and your choice of the following:
Practical Farmer,
Michigan Farmer,
Prairie Farmer,
Ohio Farmer.

For $1.25.—Gleanings and Rural New-Yorker.
For $1.30.—Gleanings and National Stockman.
For $1.50.—Gleanings and Cosmopolitan or McClure's Magazine or American Garden.
For $2 00.—Gleanings and Country Gentleman.
For $2.50.—Gleanings and Review of Reviews.
For $2.00.—Gleanings and Pacific Rural Press.
For $1.10.—Gleanings and Kansas Farmer.

These rates good also for new subscribers.

HOW OFTEN HAVE YOU BEEN DISAPPOINTED

after buying a nice handkerchief, and taking it home, to find it all cotton, non-absorbent, and just a useless ornament?

So few store-keepers realize the necessity of a linen handkerchief, and because the cotton ones are cheaper to buy, they buy them instead of linen.

Our specialty is linen handkerchiefs—pretty, absorbent, daintily embroidered, hemstitched to prevent fraying — an entirely satisfactory article.

We especially advertise for Christmas the following, which we consider the most popular quality we have ever imported.

Our imported, Belfast Linen, Embroidered, Hemstitched, Ladies' Handkerchief, very sheer, and equal to most 25 ct ones. We will send you three (3) for 50 cts., by mail, postpaid.

F. E. EDWARDS & CO.,
Dept. H. MEDINA, OHIO.

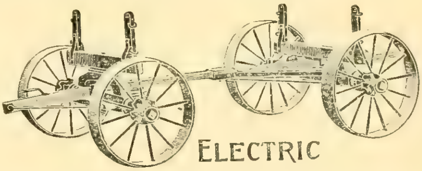
References.—The A. I. Root Co., and Medina County National Bank.

N B.—If above is not what you want, just tell us what you want and we will fill your order. We have all kinds of Handkerchiefs from 30 cts. a dozen to $1.00 each.

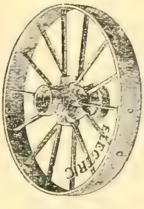
In writing, mention Gleanings.

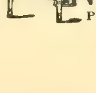
Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low-down wagon at a reasonable price.



This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc Guaranteed to carry 4000 pounds. These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low-down wagon at will. Write for catalog of the full "Electric Line" to Electric Wheel Co., Box 95, Quincy, Illinois. *Mention Gleanings.*





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PRAIRIE STATE INCUBATOR CO. Homer City, Pa.

For Only Two Dollars!

Several times during the past season, when sending in orders for queens of the superior stock that I have been selling, have bee-keepers mentioned that, in the past, they had bought queens of the various breeders, and found the bees from —— (mentioning the breeder who furnishes this stock that I am selling) away ahead of the others, but "I want the best, so I am going to try yours. If they are ahead of ——'s they have got to be pretty good." More than one order has ended in *exactly* these words. There is no doubt *whatever* that this is really an *unusually superior strain of bees.* Ever since I brought this strain of bees into notice by my persistent advertising, the demand has been greater than the supply—nearly the whole season I was from three to six weeks behind with orders. A *large number* have written me that they will order queens another season, and some are *already* sending in their orders. If you wish for as good bees as there are in this country, and want them next spring in time to get the most good out of them that year, I would suggest that you send me your order this fall. All orders are booked the day that they are received, and will be filled *strictly in rotation.* The price of a queen alone is $1.50, but I have a most tempting offer to make in connection with a subscription to the Review. Send me $2.00, and I will send you twelve back numbers of the Review (for particulars in regard to these back numbers see my ad in the last issue of Gleanings), the Review for the rest of this year, for all of 1900, and next spring I will send you one of these queens from which you can rear bees that, in all probability, will be far ahead of the stock that you now possess. If you have not read my advertisements that appeared in Gleanings the past summer, and wish to know more about the qualities of these bees, and the conditions under which the queens are sold, drop me a postal, and I will send a copy of a circular that I sent out in the summer, which will give all particulars. If not acquainted with the Review, send 10 cts., and three late but different issues will be sent; and the 10 cts. may apply on a subscription if you decide to send one in.

Remember, twelve back numbers, the Review the rest of this year, all of next year, and a queen from stock that is the equal, if not the superior, of any in America.

W. Z. Hutchinson, : : Flint, Michigan.

Don't Buy Supplies

Until you see my 39th annual catalog. A full line of hives and fixtures best adapted to our New England climate. Also best brands of **Comb Foundation and Section-boxes.** I have also made arrangements to keep quite a general stock of

A. I. Root Co.'s Goods at their prices.

Parties desiring these goods can get them of me, and **save freight charges.** Bees, Queens, and Nucleus Colonies from the **very best strains** in America. A forty-page illustrated catalog free. Address

W. W. Cary, Lyonsville, Mass.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1.00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

For Sale. Apiary and poultry ranch one mile from the village of Los Alamos, Santa Barbara Co., Calif., containing 28 acres; 800 fruit-trees and vines on the place; 100 hens and turkeys, 125 stands of bees, which produced 120 lbs. of extracted honey this season per colony; but one honey failure in 23 years. For further particulars

— ADDRESS —

Joel Hilton, Los Alamos, Santa Barbara Co., Cal.

Wanted to Move. **Carload of Bee-keepers' Supplies.**

The A. I. Root Company's make—the best. The Prices are right. You can help us more by sending your orders early. *Forty-page catalog will be sent free.*

JNO. NEBEL & SON, HIGH HILL, MO.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

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We are distributors for **Root's Goods at Their Prices** for Southern Ohio, Indiana, Illinois, West Virginia, Kentucky, and the South. **Muth's square glass honey-jars, Langstroth bee-hives, etc.** Lowest freight rates in the country. Send for catalog.

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Dovetailed Hives,

Sections, Extractors, Smokers, and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

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Carl F. Buck, Augusta, Butler County, Kansas.

FOR SALE. Barnes combined saw, good as new, $16.00; 38-40 Marlin rifle, $6.00; ladies' bicycle, $7.00; gents' bicycle, $6.00; tandem bicycle, $55.00. Bicycle frames to order, $5.00.

ROBERT B. GEDYE, La Salle, Ill.

Do You Want to Make More Money on Your Farm?

Of course you do, and the best way to do it is to find out how others who are more successful do it by subscribing for

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OF PHILADELPHIA, PA.

The most thoroughly up-to-date and practical agricultural weekly published. It leads the agricultural thought of the country. **It is the only paper for which T. B. Terry writes,** and is the only farm paper published whose contents are directly applicable in an intensely practical manner to the every-day work on the farm. Its editors comprise the leading agricultural writers of the country.

Its Unique Special Departments: Short Cuts; Mistakes, Failures, and Successes; Experience Pool; Farm Implement Annex, and Postal Card Correspondence, all supported by contributions from its subscribers, keep it in direct touch with its readers every week in the year. In addition, it has departments ably edited by the acknowledged experts in their various lines, devoted to the following subjects: Garden, Stock and Dairy, Horticulture, and Home Circle. Complete and reliable market reports every week. In fact, it contains every thing that goes to make it the best, brightest, and most practical agricultural paper published. **Subscription price, $1.00 per year.** Sample copies free for the asking.

THE PRACTICAL FARMER'S SUPPLY-CATALOG contains hundreds of useful articles for the home and on the farm, and at prices that will astonish you. Send for a copy. The price is a postal card addressed to The Farmer Co., Philadelphia, Pa.

Special Offer. By a special arrangement with the publishers of THE PRACTICAL FARMER we are enabled to offer both it and GLEANINGS until January 1, 1901, for the small sum of $1.10. Address all orders to GLEANINGS.

IF YOU ARE A BEE-KEEPER

and interested in farming, you want THE BEST FARMERS' PAPER IN THE WORLD. You will find it in

The : National : Stockman : and : Farmer

of Pittsburgh, Penn.

Editor Bee-Department, : Dr. C. C. Miller.

It is the best, the brightest, the purest. Thirty-six pages weekly. A sample will convince you. A postal request will bring it. We want to hear from every subscriber of Gleanings. Write us at Pittsburgh, Pa.

BEE-SUPPLIES!

ROOT'S GOODS AT ROOT'S PRICES.

Pouder's Honey-jars and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

W. S. Pouder, 512 Mass. Av., Indianapolis, Ind.

Root's Goods for California.

We have just received a large carload of sections, extractors, smokers, veils, etc., direct from the factory, and are prepared to supply bee-keepers with the same promptly. Do not send a long distance and pay high freights. Write for our prices.

M. R. MADARY, = Fresno, California.

SAY! Did you know the **Western Bee-keeper** has changed hands? C. H. Gordon is now editor and publisher. . . . .

Wanted! Every bee-keeper, large or small, to send 15c for 4 mos. trial. Sample copy free. .

47 Good Block, : Denver, Colorado.

EXTRAORDINARY OFFER.

Gleanings in Bee Culture and The Ohio Farmer both One Year for Only $1.10.

A business bargain for the business farmer! The Ohio Farmer stands at the head of agricultural journals in America; costs more to publish, and gives more to its readers than any other paper of its kind. It is a FARMER'S paper—practical, reliable, and entertaining. Twenty pages weekly, with liberal illustrations, and complete market reports from all the leading market centers. Ten different departments. It will pay you in dollars and cents to read it a year. Sample copies free.

The Ohio Farmer, Cleveland, Ohio.

FOR SALE.—DIRT CHEAP. ONLY $350.00 CASH. One 10 h.-p. engine and boiler with pump and all connections in good shape; one 18-inch planer—worth $100 to any factory; two saw-tables; one cutter to cut entrances to sections and bottom-slats — cost when new $75, a good machine; 30 feet of line-shafting with hangers, pulleys, and belting. For more particulars write to J. W. BITTENBENDER, Knoxville, Iowa.

SPECIAL NOTICES BY BUSINESS MANAGER

Many of our readers have already sent us their orders for GLEANINGS with some one of the papers offered in our clubbing list. We invite your careful attention to the announcements of different agricultural papers on page 905. If you want sample copies, write them direct, and mention GLEANINGS. Send your orders to us.

PRICES STILL ADVANCING.

The price of lumber continues to advance, and we would not advise waiting for lower prices before placing your orders for next season's needs. Prices are liable to be higher rather than lower.

CALENDAR FOR 1900.

We have had made for us a thousand copies of a handsome calendar representing a heap of red raspberries in natural colors. We are sending these out to our dealers and a few of our friends. We may have a few left, which we will send, while they last, at 10 cts. each, to pay for packing and postage.

MAPLE SYRUP AND SUGAR.

We have on hand a supply of choice maple syrup in one-gallon cans, which we offer at $1.00 per gallon; 10 gallons, $9.00; 25 gallons and upward at 85 cts. We have also some 200 pounds of very nice stirred maple sugar which we offer at 10 cts. per lb.; 50-lb. lots or over, 9 cts. per lb. If not familiar with this form of maple sugar we will mail a sample on request.

POST FOUNTAIN PEN.

Orders are coming in at a good rate for this valuable premium offered in our last issue. We have them with three kinds of pen-points—fine, medium, and stub. If you have any choice, be sure to mention it when you send in your order. The pens are of gold, with platinum point, in a hard-rubber holder. If not as represented, or not entirely satisfactory, they may be returned and some other premium chosen instead.

DRAPER BARNS.

In quoting prices of hives and frames in last issue we did not include prices of the deep Dovetailed hives or "Draper barns," as they have been called. The frames for these hives are 2⅛ inches deeper than the regular L. frame, and cost 30 cents per 100 more. The hive-bodies are 2¼ inches deeper, and are worth 10 cents each more than the regular depth. Those who wish to try these can do so by adding a rim to the bottom of the regular-depth hive. Any of our hive combinations in 10-frame size will be furnished with the deep brood-chamber at 10 cents each extra in regular packages of 5; less than 5 at 15 cents per hive extra.

COMB AND EXTRACTED HONEY.

You will discover from the market quotations, elsewhere, that the price of honey is rising gradually. We hear of some phenomenal prices being paid for choice honey. We still have most of the Utah car of comb and extracted. It is remarkably fine flavored, and white. It ought to please the most fastidious. We shall be pleased to hear from those interested. Extracted, 110 to 120 lbs. to the case, at 10 cts. per lb. A little off this price, in large lots. Comb honey, 18 to 24 lbs. to the case, a part of the cases with glass fronts, at 16 cts. per lb., in five-case lots. Write for offers on large lots.

$65.00 FOLDING KODAK FOR ONLY $15.00.

We have a $65.00 folding Kodak which we have used for several years. It takes the roll films, and will make pictures 5x7. As we desire to get one of the latest instruments we will dispose of this for the very low price of $15.00. Several of the pictures of this instrument have appeared in GLEANINGS, and for quality of work it can not be surpassed by any of the most up-to-date Kodaks. It has a time and instantaneous shutter, a splendid rectilinear lens, and is adapted to taking portrait and landscape work. This is a rare bargain, and we would not dispose of it except that we want in place of it the most up-to-date instrument. Samples of work will be sent free.

N. B.—The Kodak is loaded ready for work.

CONVENTION NOTICES.

The Ontario Co., N. Y., Bee-keepers' Association will hold its next annual meeting in Canandaigua, N. Y., Dec. 14, 15, 1899. All interested in bees and honey are invited to attend. RUTH E. TAYLOR,
Geneva, N. Y., Nov. 22, 1899. Secretary.

The Minnesota Bee-keepers' Association will hold its 11th annual meeting at the Court House, in Minneapolis, on Wednesday and Thursday, the 6th and 7th of December, 1899. J. P. WEST, Pres., Hastings.
DR. L. D. LEONARD, Sec'y, Minneapolis.

A meeting of the Genesee Co. Bee keepers' Society will be held in connection with the bee-keepers' institute, in Ellicott Hall, Batavia, N. Y., Wednesday, Dec. 13th, at 10 A.M. Prof. Frank Benton, assistant entomologist, U. S. Department of Agriculture, will speak at the meeting, and other interesting speakers will be present. An urgent invitation is extended to all bee-keepers to be present. Come prepared to stay all through, and make the meeting interesting as well as profitable F. H. FARGO, Pres.
Batavia, N. Y., Nov. 25. O. J. GARDNER, Secy.

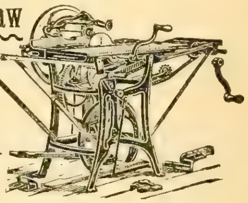
MICHIGAN STATE BEE-KEEPERS' CONVENTION.

Friend Hilton, of Fremont, Mich., writes, "I have just returned from a three-days' trip to Thomsonville and other points north. I have made all local arrangements for the State Bee-keepers' convention at Thomsonville, Mich., Jan. 1 and 2. Reduced rates on all railroads, and the choice of three hotels at 75 cents a day, two in bed. Every thing indicates the largest meeting in years, and a general good time." Thomsonville is at the junction of the F. & P. M. R. R. and the C. & W. M., right in the willow-herb and raspberry country; and with all the inducements offered, there should be a large and enthusiastic convention. I have at two different times stopped at Thomsonville during the honey-flow in July, and have seen the beautiful white comb honey for which that section of the State is becoming noted, taken from the hives and packed in shipping-cases. At least one or more of The A. I. Root Co. expect to be there, and trust the bee-keepers of the Wolverine State will be well represented.

APPLES. Winter, handsome, and good keepers. Fifty cents per bushel. J. B. MURRAY, Ada, O.

Union Combination Saw

For Ripping, Cross-cutting, Rabbeting, Mitering, Grooving, Gaining, Boring, Scroll-sawing, Edge-moulding, Beading. Full line FOOT and HAND POWER machinery. *Send for catalog A.*
SENECA FALLS MFG. CO.
44 Water St., Seneca Fs., N. Y.



Wants and Exchange.

WANTED.—To exchange a John Deere sub-soil plow, good as new, low price, for honey. Also some high-scoring white Plymouth Rock and Indian game cockerels for honey or offers.
A. W. CARSON, 113 W. 4th St., Joplin, Mo.

WANTED.—To exchange two 60-lb. cans of pure alfalfa honey for two cans of pure linwood (basswood) honey. L. H. GREENE, Berthoud, Colo.

WANTED.—Nuclei and full colonies of bees, for delivery in April; South preferred. Will furnish nuclei boxes. I. J. STRINGHAM, 105 Park Pl., N. Y.

WANTED.—To exchange three acres land, 18 apple-trees, barn, house, etc., in Washington, Ct. Consider, bee-supplies, etc. What have you? Write
DR. BALL, Litchfield, Ct.

WANTED.—To exchange Florida lake-front lot in center of Keuka. From lot can be seen school, church, store, depot, postoffice, and hotel. Want bee-goods. What have you? DR. BALL, Litchfield, Ct.

DO YOU WANT TO MAKE SOME MONEY?

OUR PRIZE-WINNING White Leghorns, Barred and Buff Plymouth Rocks, Buff Cochins are money-makers. Utility and fancy combined. Friends, they will help to lift that mortgage. One thousand fine birds for sale at reasonable prices. Satisfaction guaranteed. Catalog free.

CRESCENT FARM, : BOX W, KENT, OHIO.
E. T. BLOOD, MANAGER.

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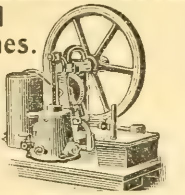
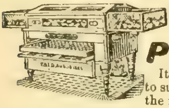


Pierce FARM Engines.

¾ and 1 H. P. For Separators, Churns, etc., Stationary to 20 H. P. **Pumping Engines** all sizes. Send for circulars stating size and for what use.

PIERCE ENGINE CO.,
BOX 17, Racine, Wis.



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would make another good name for our

20TH CENTURY POULTRY BOOK

It deals with all those subjects which tend to success in the poultry business, treated by the masterful hand of experience. No subject neglected, it hits them all. It's practical; can be adopted by everybody in the poultry business. Tells about the renowned **Reliable Incubators and Brooders.** Book sent for 10c to cover postage

Reliable Incubator & Brooder Co., Box B 49, Quincy, Ill.

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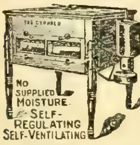

INCUBATORS THE CYPHERS.

One Style Only, OUR BEST.

Warranted to last **Ten Years** without repairs and to **out-hatch** during three trials any other incubator—bar none; **THIS OR YOUR MONEY BACK. Built for business—sold on honor.** 16-page illustrated circular and price list **FREE.** Poultry Manual and Catalogue No. 74 (160-pages, 8x11in.) entitled, "How to make money with Poultry and Incubators" sent postpaid for 15 cts. in stamps—**worth dollars.** Address nearest office.

CYPHERS INCUBATOR CO.,
Chicago, Ill. Wayland, N. Y. Boston, Mass.

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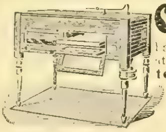

Our Incubators

have all the latest improvements, are sold at **very low prices** and **guaranteed to please** every customer. Send **6 cents** for our 150 page catalogue, which contains **full descriptions** of our extensive line and tells **how to raise poultry successfully.** Plans for poultry and brooder houses.

Des Moines Incubator Co., Box 503, Des Moines, Ia.

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DON'T BUY AN INCUBATOR

and pay for it before giving it a trial. We will send the celebrated **NEW PREMIER INCUBATOR** on trial. This evidences our faith in it. So simple a child can run it. First prize World's Fair. Also sole manufacturers of **Simplicity Incubator.** Catalogue and Poultry Helps 5 cts. Plans for Poultry Houses etc., 25 cts.

COLUMBIA INCUBATOR CO., 8 Adams St. Delaware City, Del.

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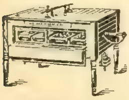

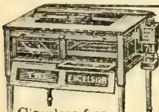

HATCH with the perfect, self-regulating, lowest priced first class hatcher—the

EXCELSIOR Incubator

Hatches the largest per cent. of fertile eggs at the lowest cost.

Circulars free.
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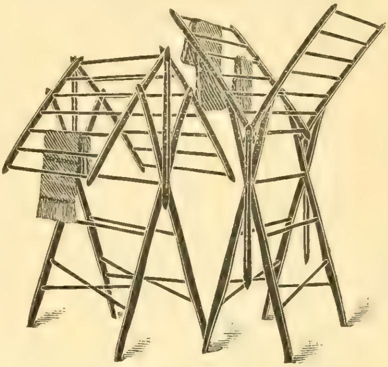
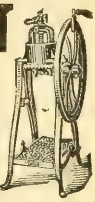


IT WILL COST YOU NO MONEY!

IT WILL COST YOU NO MONEY!

If you are a bee-keeper's wife you can have one of these useful articles delivered at your door free of charge. For particulars send postal to

D. S. Hall, South Cabot, Vt.



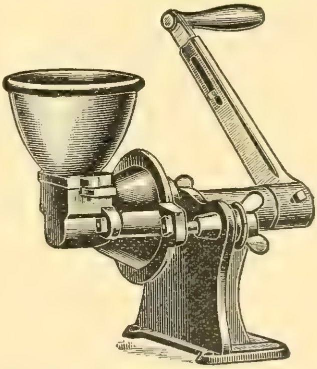
HENS LAY BEST

—in fact they lay double the eggs winter and summer when fed Green Cut Bone.

Mann's New Bone Cutters

cut all hard and soft bones, meat, gristle, &c., fine, fast and without choking and run easy. Clover cut with our Clover Cutters helps wonderfully. Mann's Granite Crystal Grit and Feed Trays too. Catalogue FREE.

F. W. MANN CO., Box 37, Milford, Mass.



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Be your own Miller....

Then you know what you're getting, and get it fresh and save money too. **The Tortilla Mill** is the simplest and best made. Will grind Nuts, or any oily or moist material without clogging. Make your own Graham, Buckwheat and Gluten flour. All kinds of Nutmeal, Vegetable Soup stock, etc, etc. *A child can operate it.* Sent on receipt of price, **$4.50.**

Address **The Frank Machinery Co., Buffalo, N. Y.**

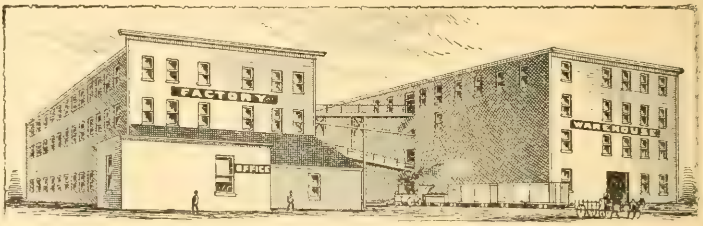
Bee-hives, Bee-keepers' Supplies

We are located on the banks of the St. Croix among the saw-mills, where we are able to select the best lumber. We buy it cheap.

We kiln-dry our lumber, and manufacture Bee-hives, Sections, and Shipping-cases

We handle Bee-keepers' Supplies.

We are Prompt Shippers.



Interstate Mfg. Co., Hudson, St. Croix County, Wisconsin.

BEE-SUPPLIES.

We have the best-equipped factory in the West. Capacity—one carload a day; and carry the largest stock and greatest variety of every thing needed in the apiary, assuring **best** goods at the **lowest** prices, and prompt shipment.

Illustrated Catalog, 72 Pages, Free.

We also manufacture **tanks** of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free

Address E. KRETCHMER, Red Oak, Iowa.

HONEY-JARS.

One-pound, square, $4 70 per gross, with corks; 5 gross at $4.50 a gross.

OUTSIDE CASES.

For wintering bees; include bottom, body, gabled cover; 60c ea.; 10, $5.50. Catalog, describing every thing a bee-keeper needs, will be sent free.

I. J. Stringham, 105 Park Place, N. Y.

Your Need is shipping-cases, some five-gallon cans, a lot of those new Danz. cartons. Send for sample carton and prices, and be surprised.

Our Desire is to satisfy your need. We can do it with Root's goods at Root's prices. Cash paid for wax. Send for catalog.

M. H. HUNT & SON, BELL BRANCH, MICH.

Chromotype Photo-Engraving Co.

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HALF TONE
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WRITE TO US
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IF YOU DESIRE SUPERIOR QUALITY
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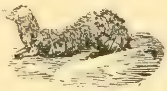
CLEVELAND, : : : OHIO.



1200 FERRETS FOR SALE. Small, medium, and large sized; some trained. **First-class** stock. New price list free

N. A. KNAPP,
Rochester, Lorain County, Ohio.

PRICES OF

Bingham Perfect Bee-smokers and Honey-knives.

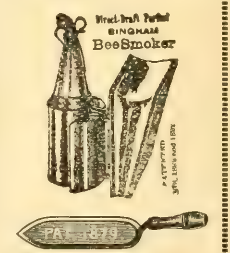
Smoke Engine (largest smoker made.)	4-inch	stove.	Doz.	$13.00;	each, by mail,	$1.50
Doctor	3½-in.	"	"	9.00;	"	1.10
Conqueror	3-in.	"	"	6.50;	"	1.00
Large	2½-in.	"	"	5.00;	"	.90
Plain	2-in.	"	"	4.75;	"	.70
Little Wonder (wt. 10 oz.)	2-in.	"	"	4.50;	"	.60
Honey-knife			"	6.00;	"	.80

Bingham Smokers have all the new improvements. Before buying a Smoker or Knife, look up its record and pedigree.

FIFTEEN YEARS FOR A DOLLAR; ONE-HALF CENT FOR A MONTH.

Dear Sir:—Have used the Conqueror 15 years. I was always pleased with its workings, but thinking I would need a new one this summer I write for a circular. I do not think the 4-inch Smoke Engine too large.

January 27, 1897. Truly, W. H. Eagerty, Cuba, Kansas.



Bingham & Hetherington Uncapping-knife.

T. F. BINGHAM, Farwell, Michigan.

Honey Column.

CITY MARKETS.

SCHENECTADY.—There is quite a demand, both for clover and buckwheat; stock on the market is almost exhausted. We quote white clover, 15@16; buckwheat, 11@12. The season for extracted opens about Feb. 1, and there is no great demand yet, but prices are advancing. C. McCULLOCH, Schenectady, N. Y.
Dec. 11.

COLUMBUS.—Fancy white comb, 16@17; fancy amber, 13@14; No. 1 amber, 11@12; dark, 10. We are in the market for all grades, either on consignment or direct purchase. EVANS & TURNER,
Dec. 7 Fourth and Town Sts., Columbus, O.

BOSTON.—There is very little new to report in the line of our honey market. Prices remain exactly as they were before with practically the same condition. The retail trade are loath to pay the higher prices, and are buying in a very small way; still, the demand is fully equal to the supply. BLAKE, SCOTT & LEE,
Dec. 8. 57 Chatham St., Boston, Mass.

KANSAS CITY.—The demand for both comb and extracted honey is steady. We quote No. 1 white comb, 14; No. 1 amber, 13½; No. 2 white, 13; No. 2 amber, 12½. Extracted, white, 8; amber, 7; dark, 6. Beeswax, 22@25. C. C. CLEMONS & CO.,
Dec. 8. Kansas City, Mo.

NEW YORK.—We have a good demand for all grades of comb honey. Fancy white sells readily at 15, some exceptionally fine lots at 16 cts per lb. No. 1 white, 13 @14; amber, 11@12; buckwheat, 10@11. Extracted honey is in fairly good demand at unchanged prices. Beeswax remains quiet at 26½@27½. We are in the market for some nice comb honey, and should be pleased to hear from those having any to sell.
HILDRETH & SEGELKEN,
Dec. 8. 120, 122 West Broadway, New York.

PHILADELPHIA.—Honey has been arriving more freely, and those who have been holding back are now pushing it forward. Evidently the highest prices have been reached. We quote fancy comb, 16; No. 1, 12; amber, 11. Extracted, 7; amber, 6. Beeswax, 25. We are producers of honey—do not handle on commission. WM. A. SELSER,
Dec. 9. 10 Vine St., Philadelphia, Pa.

CHICAGO.—Receipts are larger, and the demand is not as good as it has been. Most of the retailers have laid in a supply to carry them over Christmas. We quote best white comb at 15; an occasional lot of fancy brings 16; off grades of white, 12@14; amber, 10@12. Extracted, 8@9 for fancy white; amber, 7@8; dark grades, 6@7. Beeswax, 27. R. A. BURNETT & CO.,
Dec. 9. 163 S. Water St., Chicago, Ill.

ALBANY.—Honey all cleaned up, and with good demand; market is very firm. We quote fancy clover, 15 @17; white mixed, 13@14; dark, 11½@12½. Extracted, white, 8½; amber, 7½; dark, 6@6½. Beeswax, 25@27.
McDOUGAL & CO.,
Successors to Chas. McCulloch & Co.,
Dec. 8. Albany, N. Y.

SPRINGFIELD.—Our market is in good shape on honey. Fancy white sells at 18; buckwheat, 10@12. The demand is very good. PERKINS & HATCH,
Dec. 8. Springfield, Mass.

WANTED.—Extracted honey of all kinds. Mail sample, and price expected delivered at Cincinnati. I pay spot cash on delivery. C. H. W. WEBER,
Successor to Chas. F. Muth & Son,
2146-48 Central Ave., Cincinnati, Ohio.

FOR SALE.—Basswood and alfalfa extracted honey, 9@9½ cts. per lb. Samples 5c each.
I. J. STRINGHAM, 105 Park Pl., New York.

WANTED.—Comb and extracted honey. State price, kind, and quantity. BLAKE, SCOTT & LEE,
57 Chatham St., Boston, Mass.

WANTED.—Your honey. We will buy it, no matter where you are. Address, giving description and price.
THOS. C. STANLEY & SON, Fairfield, Ill.

WANTED.—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & CO.,
163 South Water St., Chicago, Ill.

KIND WORDS FROM OUR CUSTOMERS.

The sewing-machine was received all right. I am well pleased with it. C. G. THOMAS.
Great Bend, Pa., Dec. 8, 1899.

QUEEN-BEE MAILED TO SOUTH AFRICA.

The queen arrived safely with two workers to the fore, exactly one month from the day you posted her (July 11.) I introduced her the same day in a queen-cage and removed it in forty eight hours after. She is laying well and filling up her hive with brood. I can see very little if any difference between her progeny and our Natal bee. Would you care to have a queen-bee from here? D. C. McKENZIE.
Lion's Bush, Nottingham Road,
Natal, S. A., Sept. 29, 1899.

A KIND WORD FOR THE HOME TALKS, WITH A SUGGESTION OF THE GOOD FRUIT THEY HAVE BORNE.

Mr. Root:—I have been thinking for some little time of writing you about the pleasure your "Home Talks" in GLEANINGS give me, and of telling you of some of the *benefits* I derived therefrom. I can inform you that, two months ago on the 18th, I quit both chewing and smoking tobacco, held out faithful thus far, and, with the grace of God, expect to continue. The next benefit derived from your paper is that I quit buying patent medicine. Furthermore, I came near buying an Electropoise that you exposed in some of the numbers of GLEANINGS in 1895. I happened to look over some of the numbers of that year at a friend's house. A man here, prominent in the M. E. church, has the agency, sells them at $13, and sold a number of them this spring and summer, and would have sold me one had I not got hold of GLEANINGS. I can afford to subscribe for your paper in the future.
Marion, O., Aug. 21, 1899. LOUIS SCHERFF.

Wants and Exchange.

WANTED.—To exchange bicycles, tandems, etc., for all kinds of machinery, tools, etc., or comb honey. ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To exchange a typewriter or first-class violin for a bicycle or offers.
ANTON LEISTER, Brunswick, Ohio.

WANTED.—To exchange one dozen new phonograph records. Write giving list of what you have.
W. C. GATHRIGHT, Dona Ana, New Mexico.

WANTED.—Gem planer, one-piece-section machine, and four-piece-section machine, in exchange for cash, Given press, Clark's cutaway harrow, and Danz. bee-hives, complete. F. G. BASS, Front Royal, Va.

WANTED.—To exchange early-hatched Pekin ducks for a good extractor—Cowan preferred—Italian queens, bee supplies, or honey.
F. A. GRAY, Redwood Falls, Minn.

WANTED.—Nuclei and full colonies of bees, for delivery in April; South preferred. Will furnish nuclei boxes. I. J. STRINGHAM, 105 Park Pl., N. Y.

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GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by The A. I. Root Co. $1.00 per Year. Medina, Ohio.

VOL. XXVII. DEC. 15, 1899. NO. 24.

STRAY STRAWS FROM DR C. C. MILLER

PROPOLIS, according to S. A. Deacon, in GLEANINGS, is just the thing for grafting-wax.

CELLULOID is used in England for quilts, and is well spoken of; also in place of zinc for queen-excluders.

"THERE ARE SOME who think it necessary to renew brood-combs every 12 or 15 years," says G. M. Doolittle, p. 887. Friend D., some authorities across the water insist on every four years or less. I agree with you in believing in combs 50 years old.

THAT FOUL-BROOD CURE of Editor Simmins, given on p. 878, is almost the same, you say, Mr. Editor, as the starvation plan. There is this very important difference, that in the Simmins plan the brood-combs are all saved. [What I meant was that the principle of cure was the same.—ED.]

M. CUVILLIER reports in *Bulletin de la Somme* that he made an Italian and a black colony swap places. The black queen was killed and the Italian unhurt. The same thing occurred in three different trials. According to that, blacks accept a strange queen more readily than Italians.

YOUR CLASSIFICATION of points for bees, Mr. Editor, is good: 1. Ability to get honey; 2. Good wintering ability; 3. Disinclination to swarm; 4. Good temper; 5. Good color. Possibly some other points ought to come in and shove color lower down, as whiteness of surplus combs. I rather think I'd want 2 and 3 to change places, making non-swarming come next after honey-getting.

SOME THINK that it is not necessary to quote scripture verbatim. Possibly that might do if every one had a perfect understanding of the meaning of scripture. As it is, it is risky to give any thing but the exact words, and the contrary belief caused the learned Prof. Wiley to make a slip in Philadelphia, when he spoke of the Bible saying man *can* not live by bread alone. The Bible says nothing of the kind. It says, "Man *shall* not live by bread alone." It says, "Thou *shalt* not steal," but it would be misquoting to say, "Thou *canst* not steal."

BROTHER A. I., you've used more than two good pages of GLEANINGS trying to show up frauds, but they'll go right on; for, in spite of all you can say, people will be humbugged—want to be humbugged. But don't be discouraged; once in a while some one will listen to what you say, and it's hard to estimate the good you may do in that way. Besides, it makes good reading for the rest of us.

ISN'T THAT PLAN of tacking a piece of section on a super to mark it, as given by Wm. Muth-Rasmussen, p. 884, better than my plan of penciling on top of sections? When cleaning sections, Philo grumbled no little at my pencil-marks. [The use of section-strips for the purpose of holding records of particular colonies is a very common practice; indeed, it seemed to me almost universal in my travels among bee-keepers over the United States.—ED.]

TO MOVE BEES a short distance, here's a plan E. R. Jones gives in *Southland Queen* that has a promising look: Choose a day that will be so fair that all the bees will fly (but not in a heavy honey-yield); close the entrances with wire cloth before a single bee has left in the morning. An hour or two later they will be very uneasy, and then move them as nearly as possible at the same time, disturbing them enough to make them fill with honey; then open up all at the same time.

SPEAKING of "cross or snappy" bees, while great industry and great gentleness may unite in the same bee, I'm sorry to say that the rule is that, when I find extra good workers among my bees, they're of the "cross or snappy" kind. [There are exceptions to all rules; but it seems to be the experience of the majority of bee-keepers that honey-getting qualities are very apt to be combined with crossness — yes, generally so. This is partly explainable from the fact that very strong colonies that are prosperous in every sense of the word are more "touchy" than weaker ones, and it is the strong colonies that get the honey. This is something on the principle that a big powerful nation with its millions of investment in battle-ships, armies, and army equipments, is more inclined to bluster than one that is not blessed (or cursed) so much with war equipments.—ED.]

RUMMAGING over the past, I find a question by the "picker" of *C. B. J.*, that I never answered. He wants to know whether a small cluster will not stand freezing if its space is proportionately reduced. Friend Heise, take a box holding a cubic inch, fill it with any proportion of bees and stores, keep it at zero for a week, and see how many bees will be alive. And I suppose they'd be just as dead if the box held 100 cubic in. and was filled.

WM. MUTH-RASMUSSEN, may I guess what your queens are doing in supers when they don't lay there, as mentioned page 884? In most cases they're looking for drone-cells. If you have sections filled with foundation, then they find no drone-cells there; but if you have only small starters in sections, then I've missed. I've known a queen to pass over a brood-comb that had no eggs nor brood in it to lay in a comb that had drone-cells; and I've known a vacant place in a section to be filled out with drone-comb and not a drop of honey put in it when the rest of the section was filled, apparently waiting for the queen to come up to lay there.

"THE REGULAR T SUPER is a general favorite with a large class; but within a few years the section-holder arrangement seems to be getting the larger share of patronage," p. 894. Exactly; and why? Because so large a proportion of orders come from beginners, and they take your word that section-holders are best. Honest Indian, Ernest, if you had said during the same years that T supers were best, how do you think the proportion would have been? [The proportion might have been different; but, say, doctor, the T super is not in my judgment nearly as good an arrangement as the section-holder. Would you have me try to "push" a poorer thing for a better? I may be wrong, but, to be consistent, I must advocate what I believe in.—ED.]

"PUT NO TRUST in drugs for the cure of foul brood" seems to be the watchword on this side the ocean, while on the other side there are constant reports of apparently authentic cures by drugs. Is it not possible that, where the disease has long been known, a degree of immunity prevails among the bees? Again, a strong colony with favoring conditions withstands the disease long, while a weak colony with bad conditions promptly succumbs. May it not be that in some cases the bees come so near resisting the disease that the addition of a germicide will turn the scales in favor of the bees? [Drugs may and probably do have a wonderful effect; but in the hands of beginners they are *worse* than useless. The average beginner, in this country at least, had better not fuss with any method but the drugless cures.—ED.]

DR. MASON shortens "odd" into "od," and Stenog (879) wants it "ahd." Say, Stenog, what principle are you going on, anyway? Would you spell "not," by the same rule, 'naht"? In other words, would you use "ah" to represent short *o?* If so, deliver me from such shorter spelling. [Nothing serious, doctor — simply a joke. Yes, the German word "Naht," a seam, is pronounced just like our word *not*. Our short *o*, as in *on*, is continually represented by broad *a*, as in *all*, in my German textbooks. There is no difference between Olive and Ahliv and Awliv in practice. We can make a slight distinction, but do not in common talk (or *kahmon tok* if you please). I would not use *ah* for short *o*, as it is longer; but in point of sound, one is F sharp and the other G flat—no difference.—ST.]

PUT EMPTY COMBS in moth-proof boxes to freeze, is the advice given p. 890. Never mind the "moth-proof" in this "locality." Mine stay out in hives in the open all winter with free entrance for moths, and after standing thus through the winter it's a rare thing for moths to trouble them the following summer. [Locality! there it goes again. Here at Medina it is necessary for us to render moth-proof hives or boxes holding combs after they are frozen; but in Colorado the situation is entirely different. The moth worm and miller are unknown there. Combs and comb honey may be stored at any time without the least fear of their depredations. Similarly the black bee is not seen in Colorado. Is there any connection between the two, or is it simply because altitude (a mile high) and climatic conditions are unfavorable to the development of the moth-miller?—ED.]

WHAT A FALL this has been! In the last week in November my bees flew four days in succession. Dec. 1 and 2 they were taken into the cellar; and to-day, Dec. 4, it has not been above 25° all day, and the ground is covered with snow. Yes, indeed, I'm glad they're in the cellar.—Dec. 5, 12° above zero. [In and around Denver, during the time of which you speak, there was weather of the shirtsleeve kind — a day with a genuine western dust-storm, another with a snow-storm, followed by weather 10 above zero; but it was remarkable that it was cold and yet it was not cold. It is the low temperature with *moisture* that makes one catch cold and feel chilly; and it is the low temperatrue *with moisture* that kills the bees. For that reason the Coloradoans winter in single-walled hives outdoors, notwithstanding they probably average as many degrees of cold as we.—ED.]

THE MICHIGAN STATE BEE-KEEPERS' CONVENTION.

The next annual session of this society will be held at Thompsonville, Jan. 1 and 2. Reduced rates on all railroads have been secured, and the very low rate of 75 cts. a day at any of the three hotels, providing that two sleep in one bed. Thompsonville is 100 miles north of Grand Rapids, and at the Junction of the F. & P. M. and C. & W. M. Railrords; and, what is more, it is right in the heart of the willow-herb and raspberry country. The President, Hon. George E. Hilton, is leaving no stone unturned to make this one of the best and most profitable conventions the bee-keepers of Michigan have ever had, and all indications point to the fact that there will be a large attendance. One and possibly two members of the Root Co. will be present—J. T. Calvert and perhaps A. I. Root.

PICKINGS FROM OUR NEIGHBORS' FIELDS.

BY STENOG.

Says yellow bee, "When I was young,
And worked for A. I. Root,
The nicest gift in all my sock
Was a well-formed baby foot.

* * *

CANADIAN BEE JOURNAL.

The December number is a beautiful one on account of 16 pictures of prominent Canadian bee-men which grace its pages. The sturdiest-looking one among them seems to be Wm. Couse, and yet in another place I find he has just left the hospital after a long and dangerous struggle with typhoid fever. The first four shown seem to represent the Ontario B. K. A.; the next six, the Brant Co. B. K. A.; the remaining six are connected with the Ontario Agricultural Experiment Union. This is the best showing of bee-keepers I have ever seen in one issue of a bee-journal. Thanks, Mr. Craig.

* * *

In my last Pickings I adverted to the fact that Mr. Taylor was skeptical as to the foundation used in contrast with the Weed. Quite in line with what I surmised, Mr. Shaver says:

> Critic Taylor, in the *Bee-keepers' Review*, has made some statements regarding my experiment with the old and new process foundation, as written in the *Canadian Bee Journal* and copied by GLEANINGS. He says that the ordinary foundation which I used "has no pedigree." I am not at liberty at present to disclose the name of the manufacturer of the ordinary foundation, not having obtained his permission; sufficient to say, he is well and favorably known among the Ontario bee-keepers, and has a reputation for the production of section foundation. I shall be very pleased indeed to forward a sample of the foundation used, to Mr. Taylor or any others who may be interested. Let me also here state that my experiment was conducted without prejudice, and given out in the interests of bee-keepers. JAMES H. SHAVER.
>
> Cainsville, Ont.

* * *

The question seems to be discussed in Canada, whether the Ontario B. K. Union shall buy the *Canadian Bee Journal*, and run it as an organ of that society, or simply speak through it as a private enterprise. While "locality" might have something to do with such matters, generally speaking a journal is better in private hands. Nothing can be more dismal than religious and political journals owned by large societies.

* * *

The printer, by a funny division, makes the writer of Notes and Pickings say, "The production of honey-dew by ap-hides and other insects is a fact fully established." You mean aph-i-des (*af-i deez*), Mr. Typo. What wondrous things sometimes *hide* in a little word!

* * *

Credited to the Hamilton *Spectator* I find the following:

> William McEvoy and E. Dickenson, two enthusiastic bee-men of Wentworth County, are rejoicing over the results of the sale of a big honey shipment they made some time ago to Liverpool. The shipment amounted to 10,000 pounds, and was handled by commission men, the profit to the shippers being about nine cents per pound after all expenses were met.

I infer this was comb honey.

* * *

AMERICAN BEE-KEEPER.

Jamaica has 4207 square miles, and is 90 miles south of Cuba. It has a population consisting (1891) of 14,692 white; 122,000 hybrids; 488,700 blacks; 110,116 coolies; 480 Chinese. The country is too small to be a competitor of American bee men. It belongs to England, not Spain. Men's wages is 24 cts. a day; women's, 12 to 18.

* * *

Mr. M. F. Reeve gives reasons for spraying grapes at different times. He says the grape-growers have reason to spray when the vines are in bloom. Before growth begins it is necessary to spray in order to kill fungus and mildew growths on the vine. When the leaves start, another spraying is necessary to kill the countless insect enemies that would otherwise kill the leaves. When the fruit begins to set, another spraying is needed to prevent the destruction of the branches. Doubtless there is much in this, and, as Mr. Reeve says, the grape-growers are entitled to a hearing.

* * *

Last summer a person writing for the *Am. Bee keeper* seemed to convey the idea that a tall section is more liable to be broken at the sides than a square one. An explanation from the editor put this in a different light. In answer I asked, "By the way, how should comb honey be served on the table? Some put a little on a dish at each plate, while others put it all on one large dish, and let each help himself. But is not the shape of the whole chunk, as it leaves the section, entirely lost by cutting the comb into smaller pieces? People should be led away from what is a mere whim; but if they insist on the whim, and are willing to pay for it, let them have it." The editorial reply is too good to abbreviate:

> "Now, here is another problem into which the matter of "locality" enters with great effect. In the vicinity of Chicago, for example, it appears that a section of honey may very properly be cut and the pieces subdivided, the degree of propriety increasing with each slice, thus reducing the "whole ball of wax" to innumerable pellets of correspondingly less magnitude, while years of life on a bee-ranch, particularly when hot biscuits or pancakes are served therewith, has demonstrated the fact that, with a moderate reserve centrally located on the table, one well-filled section at each plate is quite the proper thing. We have, of course, a few disciples of Epicurus who find one or two sections of nice mangrove very refreshing between meals, but these are the exceptions. Ordinarily one pound of choice honey is sufficient."

That is, in the city enforced economy, under the guise of "style," gives us a cell of honey, or just a taste, while the farm hand is entitled to a whole section—something on the plan of serving coffee in diminutive cups, and half filled at that, and then marking a man as a bore if he, like Oliver Twist, should dare to call for "more."

* * *

Mr. Hill, the editor, gives us a fine view of the apiary of John Newton, Oxford Co., Ontario, the boyhood home of Mr. H. It shows an old farmhouse on the left, an orchard and apiary back of it, and in the distance a river, apparently the Thames, winds along. Here Mr. Hill began apiculture under the teachings of that prince of Canadian bee-keepers, J. B. Hall. Here he clipped his first queen, obtaining his skill at the expense of the drones. Quite in contrast with the above is a view of an apiary at Fort Pierce, Fla. It is one of those beautiful dreamy views so characteristic of that land of romance. To show how far Mr. Hill has traveled, he says that, while John Newton has been caring for his bees at the old stand with monotonous regularity, he himself "might have been seen climbing the foothills of the Allegheny range to see the bees poison (?) themselves with mountain laurel; chasing a runaway swarm among the sage brush up and down the precipitous canyons of California; viewing the broad acres of purple alfalfa bloom in the arid West; standing aghast at the oceans of mesquite which stretch away to meet the horizon of Arizona or Old Mexico; camped in some mangrove swamp of South Florida, testing its producing capacity, or tangled in the bellflower vines of Cuba's south coast." Mr. Hill says further, "The noticeable inclination on the part of some writers to ridicule the *locality* idea is a clear evidence of limited experience. The young man who looks forward to apiculture as his life vocation would do well to receive his training in the country in which it is proposed to operate."

GENERAL CORRESPONDENCE

RAMBLE 179.

Some Practical Appliances for Moving Bees in Hot Weather.

BY RAMBLER.

Our return from the San Gabriel canyon was marked with no unusual features, and again we took up city life; but my mingling with the busy throng was of short duration, for I was interrupted in a few days, and found myself lending a helping hand for the removal of an apiary of a hundred colonies of bees from Cahuenga Valley, near the city, to the mountains of Calabasas, thirty miles distant.

There is a peculiar instance in my traveling companions this time. They are very modest and unassuming men; and, knowing that I am inclined to write about men and things, and particularly about such movements as these, the master of ceremonies desired that I should not mention names. He wanted to just move bees, and not be exposed to notoriety.

Of course, I always try to be agreeable to my traveling comrades, and do comply with their desires, therefore the real actors in the moving episode will appear under fictitious names. There were four of us — three bee-keepers and a dog. I did think of applying the term "doggoned" to the owner, but for short I will use the more expressive term *boss*. The other man was not over-modest about his name, and the original might appear; but after riding several hours with him I concluded that, through some oversight of his parents, he had been misnamed, and so I give him the name of Mr. Gabfast as more appropriate.

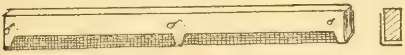
The boss, not having many hundreds of colonies to move, believes in moving in light loads, or in loads of not more than fifty colonies. Mr. Gabfast had a good team, and a wagon with a hay-rigging upon it, and with this about fifty colonies were moved, while the boss took with his lighter rig about twenty; and in order to give Mr. Gabfast and me the full benefit of his style of moving bees he insisted upon making a night journey.

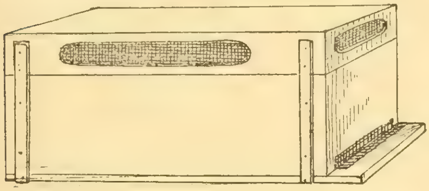
Now, it is a real beautiful experience to move bees while pale Luna is shining down upon us, and all nature is quiet. The reflections of the mind turn inward and backward. But mine didn't. Mr. Gabfast held my attention right down to that load of bees. Now, it is not that I wish to find fault with the boss's method of moving bees, but because I think there is a better way than to move during the dead hours of night. Among other things it deprives one of a proper share of slumber, fatiguing horses at an unwonted hour, arousing all of the ranch dogs, and even disturbing the quiet meditations of the ranch rooster. Bees can be moved just as well by daylight, and the difference is all in the method of moving.

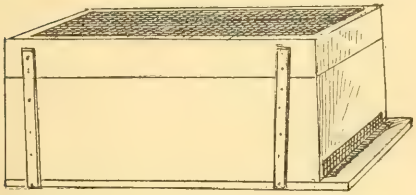
The bees on this occasion were in hives with closed-end Hoffman frames, and there was no need of puttering with spacing-sticks. In fact, a bee-keeper who contemplates much moving of bees should adopt some sort of closed-end frame. Our boss was very sensible in using such a hive. It saves an immense amout of puttering at the outset. The entrances to these hives were of the orthodox order, and clear across the front. Into this long space was thrust a piece of wire cloth cut about 1½ inches wide, and bent V shape the entire length. The spring of the V ordinarily holds the piece from working loose, but our boss took the procaution to drive in a few nails to hold it secure. Screen-wire cloth was placed over the entire top of the hive, with only a bee-space between it and the frames.

If bees are to be moved any great distance in hot weather, and hives are full of bees and brood, when prepared in the above manner they would need to be moved in the night; but quite a number of our bee-men prepare their bees differently, and move at all hours of the day and over long distances. A certain bee-keeper under my own observation in this country moved a large load of bees 60 miles in very hot weather, and at a time when the hives were full of bees and brood, and without the loss of a colony. This success was attained by providing ample space for the bees to cluster or to move freely above the combs. This bee-keeper used a rim just the size of the top of the hive, three inches deep, and covered with wire cloth, and the entrance covered with the same.

Where there is to be much moving, an entrance ventilator should be prepared that can be put on and taken off rapidly, and that can be laid away when not in use, and not become damaged. The best that has come to my notice is the one used by my night companion, Mr. Gabfast, and made as follows :







Take a good sound piece of pine or any other lumber that is not easily split, ¾ inch thick, 1½ inches wide, and the entire length of the entrance, which in this case is the whole width of the hive. Cut out a greater portion of the side, leaving three points as shown in the cut; tack a piece of wire cloth permanently to this, bending the lower portion of the wire cloth to an angle.*

When hives are to be tiered up as was the case with our load, a spacing and holding rack is placed between the tiers, and this gives plenty of ventilation to the under hives.

Another ventilating rim as used by some of our bee-men is made with side ventilation. In this case the rim becomes a box about six inches deep, with a board top, but openings are cut in the sides and ends, and covered with wire cloth. This gives plenty of ventilation, and there is no danger of its being cut off from above.

Then there is still another protection in very hot weather. With the aforesaid ventilation, provide a generous shade — a piece of cotton cloth suspended by a light framework. The air circulates freely under it, while the penetrating rays of the semi-tropic sun are held in abeyance ; and still further comfort for the bees is secured by occasionally sprinkling the cloth with water. No one can realize until he has tried it what a soothing effect this has upon the bees. Our boss had such a shade for use in moving, and Mr. Gabfast and I expected that he would order it up when the moon came out in its full effulgence ; but the boss had so many things to think of that he forgot this one.

Another factor in the moving of bees successfully is the driver. He should be a bee-keeper. No matter how well made the hives may be, or how particular the owner may be in closing them, some little corner will spring loose in a load of fifty hives, and now and then a bee will be discovered crawling around in the night or flying in daylight. If the driver is afraid of bees, there is consternation at once, and a resultant damage to the bee-keeper. I have known a case where nearly a whole load of colonies of bees were smothered from the ignorant panic that possessed a driver. Get a bee-keeper driver by all means. Of course, there was no panicky feeling about Mr. Gabfast ; and, even if he was inclined that way, he did not stop talking long enough to allow the panic to get the upper hand.

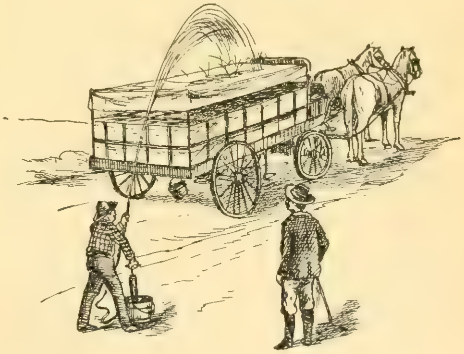
About midnight we passed through the little hamlet of Encinas. The quietness of night and a brilliant moonlight prevailed, and the little one-horse hotel and saloon showed out in strong relief against the hills in the background. Close to the entrance there was a watering-trough, and the boss ordered a halt for the purpose of watering the thirsty horses.

Directly over the trough was a board that bore this inscription : " While your horses are drinking, do not forget yourself."

"Why, of course I won't," said I ; and I pulled out a cup and drank the beautiful pure water.

"Why," said Mr. Gabfast, "that sign means that, while the horses are drinking water, you must go within and take a drink of beer."

"That's so, Mr. Gabfast ; but if I did I should feel that I was more of a brute than these sensible horses. Water is a good enough beverage for the horses and me."



I noticed that the boss was looking at the notice very earnestly, then at the saloon, which was dark and silent. As he drove ahead he kept sending longing glances to the rear. There was an immense live-oak tree a little beyond this saloon, and the boss suddenly decided to camp under it.

"Why, Mr. Boss, we shall have to drive many miles in the sun if we delay here."

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*There seems to be something wrong here with the cut, as it coes not tally with the description ; and having just returned from my trip it is too late to correct it.—Ed.

"Yes," said Mr. Gabfast; "the bees will all smother with heat."

"Can't help it, gentlemen; we must camp right here and now."

"That seems to be final, Mr. Gabfast, and we must obey orders. Wonderful, isn't it? what an effect a saloon will have upon some people."

"Yes," said Mr. Gabfast, "and I bet the boss will get back there before we leave camp in the morning. I never saw a man converted so quick from a midnight to a daylight mover of bees."

And, sure enough, the boss had a ready excuse to get back. The horses needed watering again early in the morning. "While your horses are drinking, don't forget yourself." I can not report further, for I did not take one step toward that saloon, and we can only just infer what the boss did.

Contrary to my expectations, we were favored with a high fog all the forenoon, and we safely deposited the bees on the ranch in Calabasas; and while the boss was calling upon the ladies in the neighborhood, Mr. Gabfast and I stretched ourselves upon a pile of blankets, and took a refreshing nap. As a result we felt in trim to have a nice bee-keepers' convention during the long evening.

The boss's cosy cabin, a comfortable fire in the cook-stove, Mr. Gabfast tilted back in a chair with his foot on the upper round, and leg crossed; the boss in a restful position in a rocking-chair, and I in a chair with feet elevated upon a box, the dog snoring under the table, all made a free and easy picture found only on a California bee-ranch.

I told my audience how the bee-keeping industry was to be revolutionized in a very short time; and as it is a very important revolution I will reserve an account of it for the next ramble.

WATERING BEES.

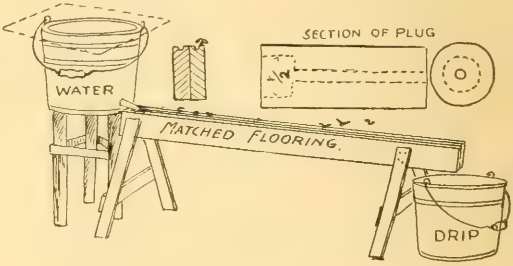
A Cheap Method of Giving Bees Water.

BY MORLEY PETTIT.

The question of water has, until lately, been considered of minor importance. Few apiaries are situated more than half a mile from water accessible to the bees, and many think this enough. Here we are not satisfied with this, however, for several reasons. In the first place, unless there is water in or very near the apiary the bees lose much time in carrying it. During the honey-flow, when breeding is heaviest, they require most water. It is then that their time is precious, and they must be relieved of extra work as much as possible. Two or three pailfuls will provide a hundred or so colonies with running water throughout the hottest day. This can be brought in spare moments, and will save the bees many trips. In early spring, water placed in a sunny sheltered place in the apiary will be used by the bees on days when the wind is too cold for them to venture far. In this way the brood will get water regularly, and be kept in a healthy condition at a time when it needs most care; i. e., in chilly weather. If water is not convenient on such days, many bees will be lost in attempting to bring it from a distance, and spring-dwindling will be greatly increased.

Second, bees often get water from impure sources. Barnyards are often more convenient, or seem more to their liking, than running streams. Standing water tends to become impure as the summer advances. Troughs, boards, stones, reeds, or whatever the bees rest on while drinking, are rendered foul by the droppings of the bees. This filth is carried in solution to the hives, and fed to the brood. This must be injurious, for, since using our present device for watering, we have had much less trouble with dead brood.

Third, many bees are lost by drowning where no suitable place is provided for them to drink. At any pond or trough where bees come for water a number of unfortunate ones will always be seen floating about in the water. I have never watched bees along the margin of a lake or river, but I imagine many must be carried away by waves or current. This, of course, is a drain on the strength of the hive when every worker is needed. It is also very annoying to stock coming to the water to drink.



Fourth, it is the easiest way of giving salt. By long observation we have become convinced that bees desire and require a certain amount of salt. If they do not get it in pure water they will get it elsewhere. Moisture about barnyards, stables, and water-closets attracts them. They seem to prefer such water, which contains salt, to pure water which is fresh. We have always given a teaspoonful in a pail of water; but this summer my father tried giving more, and found that the bees took the water fully as well with three teaspoonfuls as with one. About a teaspoonful seems to be the amount generally given, however.

For artificial watering, some use an open dish containing water. Sticks, stones, straw, corncobs, or cloths are placed in the water to prevent bees drowning. Others use a board laid flat on the ground, with small transverse grooves cut in the upper surface, and connected in such a way that water can run from one to the other. A fruit-jar filled with water, and inverted over the center of the board, keeps the grooves filled as long as any water remains in the jar. We used this device for several years, and found it quite successful;

but as there was no current to carry away droppings it had to be washed out several times daily.

What we have found to be the most complete watering-place is made from a wooden bucket, a piece of matched flooring ten or twelve feet long, and a few stakes. With an inch auger, bore a hole in the side of the bucket as near the bottom as possible. Take a piece of pine and trim the end until it just fits the hole water-tight. Then bore a hole in the end, half an inch across, and an inch deep. In the bottom of this hole make a gimlet-hole, also an inch deep. Now saw off this two-inch piece. This gives a round piece of pine, one inch in diameter and two inches long, having a hole through it lengthwise half an inch at one end, and about the size of an ordinary nail at the other. Use this to plug up the hole in the bucket, putting the end with the large hole in first, and allowing the other end to project for a spout. A nail placed loosely in the gimlet-hole will regulate the flow. Drive three stakes in the ground to form a stand. Set the bucket on these, and a shade-board will complete the fountain.

The piece of flooring placed on edge with the groove up is the trough. Have one end slightly elevated to give a good fall, and allow the water from the fountain to drip into the higher end of the trough, and run along the channel. The whole should be high enough so that a pan or pail can be set to catch the water as it flows from the lower end. Allow the water to flow freely enough to make a good current along the channel. If the bucket and trough are thoroughly washed every morning the current in the channel will provide the bees with clean water all day.

Belmont, Ont , Sept. 9.

COMB FOUNDATION IN SECTIONS.

The Great Advantage of Full Sheets; Importance of Accurate Trimming of the Sheets; How to Fasten.

BY R. F. HOLTERMANN.

In my experience and travels among Canadian and United States bee-keepers I have found quite a few differences in the general methods adopted by the two countries ; and in an occasional article which I may find time to write in connection with the new work in which I am engaged I may make reference to some of these differences.

In Canada I know of no well-known comb-honey producer—one whose goods rank as the best produced in the country—who does not use full sheets of foundation in the sections. There may be seasons when the bees will fill a section with a starter as well as a section with a full sheet of foundation ; but the successful bee-keeper must lay his plans and prepare his supers and equipments in such a way that the bees can get the best results under all circumstances.

I have made tests with full sheets, starters, and no foundation, in sections in the same super, and with a moderate flow the bees have completely filled all the sections with full sheets of foundation when they had not built a cell in the sections without foundation, and very little more than the foundation in the section with the starter ; and from experience and observation I know that this was not an isolated case by any means. Almost any one of experience can tell by the finish of the section whether the bees had a starter or a full sheet to begin on.

I am also firmly convinced that, with full sheets of foundation in the sections, other things being equal, the bees enter the sections more readily, and are less likely to swarm without going into them. This is of immense advantage in the production of comb honey.

A great many are not careful enough in putting comb foundation in the sections. The best and most accurate machinery is none too good in doing this. Take two bee-keepers living side by side, with equally strong colonies, and in other respects on an equal footing, and a little difference in the putting-in of the comb foundation may put one so far behind in the race for a prize that he can never catch up.

The comb foundation that sags the least, and the lower edge of which the bee-keeper knows where to find after the bees have been on it for some time, is the best. With section comb foundation the matter of sagging is not so important ; but the Weed process has the least tendency to sag, and I have never made any allowance for this in sections.

The comb foundation needs to be cut absolutely true and accurate. It needs to be of a width that, when suspended in the section, it just hangs clear of the sides ; and at the same time, having accomplished that object, it has the least possible amount of room between the edge of the foundation and the side wood of the section ; and at the bottom the distance can be a little greater, but it should not be enough to give the bees much thought as to the possibility of being able to pass through.

What is the object of this? If the foundation binds on the sides of the section it is likely to be thrown out of true, and buckle it. As long as this is not done it can not be too close. By being near the wood the bees readily attach the foundation : when further away they not only do not attach it as quickly, but they are likely to gnaw it away and make permanent openings for themselves, which injure the appearance of the comb.

Having seen the argument used as to the value of sections well filled, let me say they have in this country, at least, a very practical advantage over sections not so well filled. Of large quantities of comb honey shipped long distances, when properly packed, I have yet to receive a report of broken-down sections being well attached and the comb well filled to the wood. In case of a jar or fall, the strain is not on the fragile comb between the wood, which can not give, and the weight of the comb and honey. Next, a well-filled and even section sells more readily, and will often bring a higher price in the market. The former alone is a very decided advantage ; besides, what a pleasure there is in doing a thing well, and seeing good results from it! How natural it is to follow such a success up with further efforts! This is all right and proper within bounds, and with a proper object; but if it is done with the object of being able to glory over the defeat of others, it would be better for our spiritual welfare if it had never been undertaken.

Those using only starters in sections, especially if the honey-flow is only moderate, will have sections not so well filled and joined to the wood, and the bees will be slower in doing it. Next, it never looks well to have two kinds of cells in one section; and where a starter only is used, the bees are very likely to finish the section with drone comb.

Many will experience a difficulty in putting foundation into sections accurately. There may be better ways of doing it, but I know of no better way of doing it than with a hot-plate machine. In the one-piece section there is a difficulty in connection with putting in well-filled sheets of foundation. When the hot plate is shoved in, and below the top-bar of the section, the foundation then pressed up against the plate, a little of the sheet must be melted. The foundation is then brought up against the lower surface of the top-bar of the section. In this process with the sheet against the bottom of and in the center of the bottom-bar of the section, when the hot plate has been withdrawn and the foundation has been pressed against the top-bar of the section, it must be removed from the bottom-bar of the section a distance at least equal to the thickness of the plate and whatever was melted away from the wax sheet. This is too much to get the best results.

The difficulty can be overcome by placing the board inside the section upon which the foundation rests at an angle, so as to carry the foundation next to the bottom-bar; beyond that bottom-bar the angling position alone gives added room; and when suspended from the top the sheet readily assumes a perpendicular position; and as it does so it nears the bottom-bar and closes the space. With a four-piece section the better way is to fasten the foundation into place before the section is put together. When all is in working order by this method, about 45 sheets of foundation can be attached to the top-bar of the section in a minute.

Brantford, Canada.

* * *

ABOUT THE SMOKER.

Ink Dropping from the Nozzle, Caused by What? Hinging the Nozzle of the Crane Smoker.

BY F. GREINER.

The controversy in regard to inky fluid dropping from the nozzle of the smoker makes me think of a certain question one of our teachers asked us boys once at school. From our window we could often see the cars passing by, and on one occasion the teacher said to us, "Which one of you can tell me what it is that comes from the smokestack of the engine?"

"Smoke, of course," said one.

The teacher shook his head. Another boy, after a while, said, "Steam;" but the teacher again shook his head. It was a puzzle to us. At last one of the bright ones called out, "Smoke and steam both," at which answer the teacher smiled and assented.

It is steam and smoke coming from the smoker's nozzle, and the two together seem to form a union, in part condensing in the smoker, filling the nozzle partly with that objectionable accumulation, and, when it comes to the worst, even dropping "ink," a very undesirable substance when coming in contact with our clothing, our hands, or the hive-fixtures. It is the amount of surplus moisture that causes the latter unpleasant feature. The ordinary amount of moisture does little harm, and is absorbed and evaporated. This surplus moisture does not, however, all come from the fuel one may use, I think. It comes also from the atmosphere, which is always more or less charged with it, and I believe the greater part of all the moisture causing the trouble in the smoker is due to this moisture as it is blown by the bellows into and through the fire-box. When I first commenced bee-keeping I had no bellows smoker, and so I constructed a little blowpipe from a tin pepper-box, etc. It proved to be a handy tool indeed in some respects. Both hands were always free to use in manipulating, and at the same time smoke could be administered when necessary. I am quite partial to this little smoker, and I would use it to some extent to this day if it did not have this very annoying feature of dropping this inky liquid in a much intensified measure, owing to the fact that the air, as blown into the fire from the lungs, is much more abundantly charged with moisture than the air we breathe or the air the bellows uses.

At the time, I experimented a great deal with my little smoker, to overcome, if possible, that bad feature; but the condensing would take place at the extreme (and hence naturally the cooler) end of the tube which carried the smoke, etc.; and all my efforts to catch the disagreeable fluid in a separate little cup proved futile.

Since I have adopted the bellows smoker I have had no trouble whatever with "ink" when good fuel was used. Pine sawdust or planer-shavings I regard as the poorest material, filling up the smoker quickly with accumulations, and causing ink to drop. Generally speaking I am not very exacting as to what material I do use as fuel, but make use of the things that are handiest; for instance, planer-shavings, sawdust, and the like; rotten or half-rotten wood; chips and old quilts and phosphate-sacks; but I do not consider it essential to keep fuel for several years to have it as dry as Mr. Taylor prefers. Rotten maple or elm wood or partly rotten wood may be dried sufficiently inside of two or three weeks by exposing to wind and sunshine if taken indoors every night and during rainy weather. So treated it is soon fit to answer as fuel for the smoker, and there will be no ink dropping.

The accumulation in the nozzle can not be overcome with the dryest fuel, and must be removed from time to time. A clean smoker works more satisfactorily for me.

Now, Mr. Editor, allow me to say another word or two on the subject of the smoker. I should like to suggest a slight change too. Some six years ago I bought of The A. I. Root Co. a Crane smoker. This I have used since, extensively and exclusively. I have taken it to the out-yards with me; it has been used rather roughly some of the time. It has been the only smoker I had in use, and it is still doing a good businees, although the nozzle is getting to be very weak and poor. Last winter I bought six Corneils, and they work very well too, but I do not like the way the nozzle is hinged. Of course, you observe the hinge on the Corneil is on the opposite side from what it is on the Crane. The reason I object to this is, we sometimes rest the nozzle on the edge of the opened hive when blowing smoke in between the slightly raised honey-board or quilt and top of the frames. The pressure or weight is quite often sufficient to cause the smoker to come open, occasionally even letting the fire fall out. If hinged the other way the tendency in this case would be to crowd the two parts rather more closely together, and that would, of course, be preferable. I am in favor of having the hinge opposite the bellows. A corrugated shield would also suit me better.

Naples, N. Y.

[We formerly had the nozzles of all of our smokers hinged in the way you seem to prefer them. There are two objections. One is, that the nozzle falls back against the fire-cup, denting it; and the second is, that when the smoker is being filled the blaze from the burning fuel will very often shoot out at the top and burn the bellows and the fingers. I presume the great majority use planer-shavings — just the very fuel that you condemn; and it is this fuel that blazes and causes trouble with the bellows when the nozzle is hinged opposite.—Ed.]

THE HIVE QUESTION.

Why Large Hives are Better for Extracted Honey.

BY L. STACHELHAUSEN.

Some time ago the best size of brood-chamber was discussed very thoroughly in Gleanings and other bee-papers, so the matter will seem stale to many readers; nevertheless, I hope it will be interesting to have a summing-up and a more scientific explanation of it, which I will try to give.

We know the bee is 3 days in the egg form, 5 days open brood, 13 days capped brood, 2 days it is not able to work, 16 days does housework, and about 16 days field work. If the number of eggs laid daily remains the same, we can figure how many young bees are in the hive, if we know how many eggs are laid daily. In this case the colony will remain the same—that is, as strong or as weak as before. An increase of the population is possible only when the number of eggs laid by the queen is increasing; and if this number is diminishing the colony will become weaker. This is important, because, if the population of a colony would remain the same, it would in most cases, during the time when no honey can be gathered, consume what it had stored during the honey-flow.

In fact, a good colony increases the population from early spring up to the honey-harvest, then the colony is getting weaker. In the fall, if some honey can be gathered, a new short increase of the brood can be observed; and in winter, breeding is stopped entirely.

If it is our aim to have as many bees as possible for the harvest, and as few consumers as possible when no honey is coming in, it is only one way to attain it in a given colony; and that is, to increase the number of eggs laid daily by the queen up to the honey-flow, and to the greatest extent. Now it is said, "Why overwork this queen? Two queens would easily lay the same number of eggs." Well, suppose we have two colonies in spring quite alike, covering 8 L. frames. One of them is in a large and the other in a small hive. In my locality the bees have generally commenced brood-rearing Feb. 1, in all my hives. The honey-flow commences at the end of May. For this it is desirable that the queen reach her highest egg-laying capacity about May 1. Consequently we have for the development of the colony 82 days—that is, 4 breeding-periods of 21 days each. If the queen commences egg-laying with 200 eggs daily, and doubles this number in 21 days, we have 400 eggs Feb. 21; 800 March 14; 1600 April 5, and 3200 April 26. For the honey harvest we have, then, 108,000 bees in this hive.

Now, suppose we have the same colony in a hive so small that the queen is cramped as soon as she lays 1600 eggs a day, because she does not find more empty cells, or for any other reason can not lay more eggs. It is plain that from this time on the population of the colony can not increase any more, and we shall have 54,000 bees for the harvest; consequently the colony can gather only half as much honey as the other one.

Here comes in another point which is of less importance. We have reached the highest population in the large hive May 17, when the honey-harvest commences. In the small hive, from April 26, the colony will remain the same; consequently the largest possible population is reached at a time when it was not necessary. In these 21 days 43,600 eggs are laid, and just as many bees die, and are raised without any profit for the colony; they are consumers just as well as the bees raised after the honey-flow. Nature has a remedy for this, but this belongs to another chapter.

During the honey-flow the brood in both colonies is restricted; in the large hive, where we have an overworked queen, probably more so than in the small one. This is a desired condition for the honey crop, because comparatively less brood is to be nursed, and a part of the young bees can build combs and store honey; but it may be undesirable for comb-honey production, and we will speak of this afterward.

When the honey-flow ceases, the colony in the large hive will not be stronger than that in the small hive; and this equality will remain till the end of the spring development. The consumption is theoretically the same in both colonies in fall, winter, and early spring; but during the last 21 days of development one colony kept up the same strength, while the other one doubled its population.

If, in fact, the development of the brood does not occur in this restive way, and if many other influences change the outcome, this will not change the value of the proof. I think I have explained the reasons for the advantages of large hives and prolific queens.

The locality has some influence in this matter. If the main honey-flow is very early, the colony may have no time to develop to such a degree that the queen can lay to her fullest capacity. In this case stimulative feeding in the fall is recommended, to have very strong colonies in early spring. By that not much seems to be gained by strong colonies and large hives, if we do not admit that strong colonies consume less, comparatively, in winter, sometimes even absolutely less than a weaker colony.

If the main honey-flow is very late it is probable that the queen, long before, has reached her highest egg-laying capacity, and the colony may be even weaker, when the honey-flow commences, than it was some time before.

As long as the queen increases the number of eggs laid daily, the number of young bees is increasing also. If suddenly the egg-laying remains stationary, or is diminishing, the number of young bees will still increase during the next 21 days; consequently we shall have a surplus of young bees compared with the open brood, and this causes the swarming impulse. To explain this scientifically would take too much space here. This swarming impulse appears as soon as the queen reaches her highest egg-laying capacity, be this caused by crowding her in a small brood-chamber or by the limit of her fertility. This is the reason why small hives swarm more and earlier than large ones.

With a late honey-flow and small hives the colonies will swarm before the honey-flow commences, and now every swarm and every old colony undergoes a new progressive development. This explains why under some circumstances the swarm and old colony will give more surplus honey than a colony undivided. A locality with very late honey flow requires quite a different hive and management from a locality having an early honey-flow.

The problem is, always to keep the colonies in a progressive development till the main honey-flow commences, and at this time we shall attain the most strength. The more population we gain in this time the better for the honey crop. During the honey-flow it is necessary to have as little open brood in the hive as possible, for two reasons: The bees raised from this brood are of no use for this season; and, second, if the bees have less brood to nurse, more bees can engage in other work.

WHY ARE SMALL HIVES PREFERABLE FOR COMB HONEY?

Most comb-honey producers say the eight-frame hive has given them more surplus honey than a larger one by their management and in their locality. This seems to be in contradiction to our researches in the foregoing, and needs an explanation.

With the beginning of the honey-flow we set the section-supers on top of our hives; and the main difficulty now is to force the bees into the sections and to induce them to commence work in them. If we can not do this, at least some days of the best honey-flow are lost — may be the entire crop. For this purpose the brood-chamber must be in a certain condition:

1. No empty cells should be in the brood-chamber, because they would be filled with honey; and if the bees have started to carry honey into the brood-nest they become accustomed to it and refuse to go into the sections (Doolittle).

2. If possible the brood-chamber should contain brood exclusively; especially the frames should be filled as near to the top-bar as possible. This needs no explanation.

A large brood-chamber can hardly be in this desired condition. In a very good honey-flow the bees will work in the sections nevertheless; but generally they do not Dadant recommends two methods for getting a large brood-chamber in proper condition:

1. From early spring, empty combs are given to the colony; by and by, as soon as more room is needed for the brood, the brood chamber is always contracted to the space the queen can occupy.

2 At the beginning of the honey-flow the brood-chamber is contracted to as many frames as are needed for brood.

Both methods did not work satisfactorily with me. The first one is, in fact, the same as recommended by Doolittle. If we want the frames full of brood, the queen must be always crowded. I can not see how Dadant can get more brood than Doolittle by the same management, if the brood-chamber is in proper condition. In fact, in this case he will have a large hive, but will not avail himself of its advantages.

The second method has the disadvantage that the brood-combs are not in proper condition. Every comb may contain empty cells, brood and honey on top, which combs we always select for the contracted brood-chamber. This will not be the desired condition.

Both methods have the disadvantage that some of the sections are over the dummies and not over brood. If the colony has really developed in the large brood-chamber to its fullest extent, the queen will be overworked and will probably not lay as many eggs; as yet some cells will be free for storing honey in them. This state is favorable for the amount of honey stored; but the brood-chamber is unfit for the production of comb honey. This I have mentioned already.

With so-called double-deckers a very large brood-chamber is used at the right time. When the honey-harvest commences, only one story is used; that is, the brood-nest is contracted, and thus we have the advantage that the top surface remains the same; but I think we shall hardly find the brood-combs in the right condition to force the bees into the sections.

With a small brood-chamber the queen has never before used her full powers, and is always eager to lay in every empty cell; consequently the brood-chamber will probably be in the desired condition. Because in a large hive the bee-keeper can not get this desired condition, he sacrifices the full development of the colony and the advantages of it. This reduces the honey crop to a smaller extent than a brood-chamber in a wrong condition.

It is well known that in the production of comb honey we have the least trouble, if we use swarms, if they come out at just the right time — that is, at the beginning of the main honey crop. If a colony swarms before this time, neither swarm nor the old colony will be in proper condition for comb-honey production when the main honey-flow commences. How a swarm is used if it issues during the honey-flow is known as Hutchinson's method. Hereby, too, we need small brood-chambers; first, to start the bees of the parent colony into the supers; and, second, to get the swarms at the right time, because large hives would not swarm at all or else too late. By this method the swarm is hived in a contracted brood-chamber; but this has no bearing on our question, because we see the advantages of large hives in the season before the honey-flow.

If a large hive in spring means more surplus extracted honey, and for any reason we can not use this advantage for comb honey, it is a proof that our management is not advanced enough to overcome this difficulty; our problem must be to find out a method by which all advantages are utilized.

I produce mostly extracted honey. Only a few hives are worked for section honey; but for two years I have used a method in accordance with the above theory which I think is worth consideration. In 1898 I got from one hive, managed after this method, 120 filled sections and a number of partially filled ones, while my average crop of extracted honey from the whole apiary was less than 100 lbs. per colony. I will describe this method in my next article.

Converse, Tex.

* * *

ALFALFA AND ALKALI WEEDS COMPARED.

BY W. A. H. GILSTRAP.

Few subjects interest bee-keepers more than the flowers by which they are surrounded. We must make a study of the vegetable kingdom to make estimates of our crop before harvest. In the sage counties of this State a practical honey-producer usually forms a fair guess, at least, sooner than is done in this valley in most localities. Most of the San Joaquin honey is from alfalfa, and it is a very unreliable source. As a general thing alfalfa produces most honey with water enough to make a fair growth only. Irrigation enough to make a very rank growth is often detrimental to the greatest honey-yield. Of course, a severe drouth is ruinous. Sometimes there is very little honey secreted during one or more months when alfalfa is in bloom, and no certain reason can be assigned. To say "atmospheric conditions are unfavorable" is a vague expression at best, when we can not see or feel the exact difficulty and call it by name.

It would seem that some plant would be desirable to supplement the alfalfa during unfavorable seasons. Frequently that is easily found in the vicinity of alfalfa; it is alkali weed. This may not be the proper name of the weed; but, being a very common man, I use common names when they are not misleading. Many people call it "sticker weed" on account of the small prickles with which it is covered. One apiarist used to call it "yellow top," but has since adopted the name "golden top." As bee-weed, wild sunflower, goldenrod, and many other plants have yellow, more especially at the top, than the weed in question, there is nothing distinguishing in either of these terms. Alkali weed certainly has the claim of popularity for the weed.

It is probably a relative of the Russian thistle, though not a tumble weed. Both commence their growth in cool wet weather, and make some stock-feed early in the season, especially for sheep and cattle. As the weather becomes warm the growth becomes more rapid, the plant becomes woody, and the spines are such as to protect the plant from ordinary stock.

At this point I will drop the thistle, which is getting too hard and thorny for me, as it was taken up only to explain better the honey-plant in question. These weeds frequently grow as high as wheat before the latter is cut, and sometimes prevent its being harvested, as the weeds would decay in the stack. You need not expect much bloom before July or the first of August except on strong alkali land where the weeds are stunted. Then the golden honey is produced until frost or early rain kills the plant. This year was an exception, as the honey failed about Sept. 23, and our first rain fell Oct. 10. Hardly enough frost yet for you to see. In seven years I have known two failures of this source, caused by drouth.

The flavor of this honey is pleasant, not so sweet as alfalfa, classed as amber or light amber by different dealers. It is too yellow to excel as comb honey, and also granulates quicker than some other honey. These are reasons why it is no more sought after by apiarists.

Had Mr. Wilkin (page 750) known the value of these weeds he probably would not have tied up to alfalfa alone, and would have harvested, very likely, from four to seven times the honey which he reports. In some spots near Famoso, alkali weeds sometimes grow; but to see many thousands of acres turn to a beautiful yellow you had better go further north.

As the weed grows up quite bushy, and is a mass of blossoms resembling wild sunflower in color and shape, and a shirt-button in size, for two or more months, it might seem to be an immense honey-producer, but it is not. Perhaps it would run between 75 and 150 lbs. extracted to the hive all seasons when the weeds grow well. Of course, good management is assumed. As bees will consume probably 100 or 200 lbs. of honey per colony in a year, it is plain to see that we must have some other work for the bees in spring and early summer. But as other honey-producing plants are usually on the same range with it we can get along in that respect.

It is certainly worth something to look at a lot of green weeds in April, and be practically sure that they will make a crop of honey in late summer and fall. I know of no other plant that you can foretell the honey prospects of with such certainty.

From the above it might appear that I consider alfalfa a poor honey-plant. It is the principal honey source in this valley, and is likely to remain so. Mr. Wilkin's report is about as small as you are likely to see. A Los Banos man in the alfalfa-fields made so much money with his bees this year that, to give the figures in GLEANINGS, might give the bee-fever to many. But when we consider that he had 1000 colonies, and they reduced to 850 during the season, his profits do not look so big for a year of high prices. For a locality with a foul-broody reputation, a loss of 150 colonies out of 1000 does not seem strange.

Grayson, Cal., Nov. 9.

SURE OF CROPS.

A Locality Where they Have Them in Northern Michigan.

BY ANTON LEISTER.

Mr. Allen Rice, who lives in Manton, Wexford Co., Mich., a hundred miles north of Grand Rapids, is a farmer and bee-keeper. During a visit to his brother here I got from him his bee experience as follows :

"Don't you have trouble wintering bees so far north?"

"Not unless we are careless, as I was last fall. I had 27 stands, strong, and well supplied with honey for winter. They were all in Simplicity hives. I piled them up in the shop and put cornstalks over them. I neglected to raise the covers a little for ventilation, and lost all but six colonies. They drowned and froze in their own perspiration. Each colony was ready sale at $5.00, and they would have made me 60 lbs. of section honey in a good season, salable at 10 cts. I now have 18 colonies. Some of the original six spring colonies sent out two and three swarms."

"Do you feed your bees in the fall to stimulate brood-rearing, and to make sure of sufficient winter stores?"

"Never. We don't have to. There is always sufficient bee-forage, even in a poor year like this, so that they always have an abundance of natural stores ; and our colonies are always strong. From each of the hives that failed to winter I took two gallons of strained honey."

"What kinds of bee-pasture do you have up there?"

"Chiefly basswood, white clover, and alfalfa. There are many basswoods in the forests yet. The white clover is a sure crop every year, as it does not come at intervals, as here. It grows wild as in Ohio. Alfalfa is growing in favor with farmers as cattle feed, and more is sown each year. It makes good honey. It is my belief that our bees get honey from red clover—at least I have seen them at work many a time in the red-clover fields when in blossom. My bees are Italians that came originally from Root's stock."

"Do you extract?"

"Decidedly not."

"Why not? It seems to be the method of most honey-producers."

"Because I believe that this smoking and tearing the hive to pieces, and robbing the stores, disturbs the bees so that they do not work and thrive as well as if left to their natural ways as much as possible. Some of my neighbors extract, and I notice that their bees do not thrive as well as those not so disturbed. I work for section honey only. The sections are put in a box that fits on top of the hive, and holds just 30 sections. The lower part of the hive is never disturbed. I have no trouble about getting the bees to work in the sections."

"What is your average yield of honey?"

"The average yield per hive, year after year, I should put at 60 lbs. of section honey. I have had as much as 120 lbs. from one hive. I have put on an empty case of 30 sections on Monday, and the next Monday have taken it off filled. I have kept bees ten years, and in that time we have had no years that were total failures, though some are not so good as others. This year was a poor one, and the yield was an average of about 30 lbs. per hive, about half the average season's yield. Some of the new swarms made 60 lbs. this season."

"How do you market your honey, and what prices do you get?"

"There is no method or trouble about the marketing. My honey all goes to private local customers. They come to me, and I sell it to them at 10 cents per section, supposed to weigh one pound. I don't advertise nor peddle, nor otherwise solicit trade. I have been asked to ship honey, but prefer to sell at home. My customers all buy for their own use only. I have no trouble in getting rid of half a ton of honey in this way."

"What have you to say about candied honey?"

"People in this part prefer the candied honey. They, as well as I, think that the candied state is the state of being fully ripened, and with the best flavor developed. Melting candied honey destroys much of the fine flavor, and, according to my taste and belief, it is not a good practice. Much of our honey candies in the comb. It is fine eating."

Brunswick, O.

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THE LONG-IDEA HIVE.

How Constructed and How Used.

BY O. O. POPPLETON.

I am a beginner in bee-keeping, and have the utmost respect for the opinions of Mr. O. O. Poppleton. On p. 727, Oct. 1, is an item regarding the Long-Idea hive. I should feel very thankful to him if he would more fully describe the hive, so that I could make and try one or more, and I am sure others would appreciate the article. W. EMORY.

Avondale, Fla., Oct. 21.

[Mr. Poppleton replies :]

The dimensions of the Long-Idea hive can be varied to suit any style of frame one wishes to use, keeping at least two points in view ; viz., that the frames in use in them should be at least two or more inches deeper than is the standard Langstroth frame, and the hive should be long enough to hold as much comb in the aggregate as at least 25 Langstroth frames will hold. These are the essential differences between any simply made standard hive and the Long-Idea.

The hives I have in use are made of four boards 13 in. wide, front and back ones being 36 in. long, and the ends 15 inches. When nailed together the inside measure is 13 in. deep, 13¼ wide, and 36 long. Entrance to hive is ½×12 in the center of the lower edge of the front. The two sides have rabbets in inside of upper edge ½×½, for ends of top-bar of frames to rest in. I use a tight bottom-board projecting in front 1½ to 3. Tight bottom-boards are a necessity with me because I practice migratory bee keeping, but are not essential. Like the Dadants I prefer the old-style telescopic cover. I couldn't be induced to use any other kind; but these are not essential to this system. Any style of cover works the same on these hives as on any other.

The frames I use are 12 in. square, inside measure ; but for Mr. Emory, or any one else wishing to test this style of hive on a small scale, I would advise his using the extra-deep Langstroth or Hoffman frame now being made by The A. I. Root Co. for use in the Draper barns. In case he should ever wish to do so they could be easily changed to the standard size by cutting off bottoms of the end-bars. The dimensions of the hives in case those frames are used would be the same from front to rear as in the Simplicity hive — enough deeper to fit the deep frames, and not less than 30 inches long, inside measure.

One difficulty in testing a small number of these hives in an apiary is in the fact that the deeper frames may not fit in the extractor one may have.

In manipulating these hives I put the brood-nest in the center, then use whatever combs the colony needs on each side, using two division-boards, one on each side of the combs. the hive a glance will let one know whether the colony should have more or less combs, and whatever is needed, whether one or more can be added or taken away without having to add or take away an entire story. Division-boards should not be tight-fitting.

I think the above gives the information Mr. Emory wishes; but if not, I will cheerfully reply to any questions asked through you.

Stuart, Fla., Nov. 6.

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GREASY SECTIONS.

Caused by Hot, Dry Seasons, Not by a Poor Queen. Errors in Bee-literature.

BY WM. M. WHITNEY.

Under the head of "Beedom Boiled Down," on page 714 of *American Bee Journal*, the first item that meets the eye is the following : "Errors about bees are found in books of other countries as well as this." Well, that is not at all strange; but there are enough in the books and journals of our own country to command the attention of the careful bee-keeper during the time he may have to devote to study and experiment.

I believe a case in point is under this same heading in the following words : "Then when you find a super of greasy-looking sections you know where to replace a queen next spring." Now, my experience has taught me to doubt the correctness of the position assumed in the above statement. Allow me to illustrate. I have colonies, over which, early in the season, were placed cases of sections ; later they were raised and others put under, and in due time I removed the first case, containing nice white capped honey ; the second case was raised, and a third put under. When the second case was removed, many of the sections through the middle of the case had a greasy appearance ; but the last case of late honey had white cappings.

Now, I had read much that had been written upon the subject of greasy sections, all of which seemed to be along the same line of thought ; viz , charging the grease up to the queen, and pronouncing upon her the death-sentence ; but why the same queen should give me both beautifully capped sections and greasy ones caused me to stumble at the above theory, and set me to investigating the matter for myself.

Most of my colonies were very strong during the entire honey season, the first and last cases being filled rapidly during comparatively cool weather ; but the cases which passed through the dry hot part of August were subjected to quite different conditions. The nectar was necessarily very thick, although there was a very good flow from sweet clover. The bees filled the cells to the very brim, and capped them; the honey, being very ripe before capping, did not shrink as it often does ; the hives being very warm, as a matter of course the cappings absorbed a portion of honey—hence the greasy appearance.

You will observe that all such honey is much heavier than white capped honey of the same cubic dimensions, and I find a few customers who, knowing a good thing when they see it, prefer this honey to that of a more pleasing exterior.

I think you will find, on examination of the brood-chamber of a populous colony, that the newly made comb, if filled and capped during the hot dry season, unless it is at the outside, will, almost without an exception, have a greasy appearance. I am not speaking now of travel-stains, which are quite different in appearance, and which any experienced bee-keeper will readily detect.

Now, you veterans in the business, allow a novice to admonish you to hesitate before you "pinch the head" of a queen that has filled your hive to overflowing with bees that can go to the very bottom of the nectar-receptacles in the dryest, hottest season of the year, and store up an abundant supply of sweets "fit for the gods to sip."

I may be wrong, but it seems to me this matter will bear further investigation, and it will disappoint me greatly if the truth does not lie along the lines herein indicated. At any rate, let us have the truth.

It would do my soul good (I will not attempt to disguise the fact) to be able to tell Dr. Miller and some of the other old sages in the brotherhood, something, perchance, they do not know. I should feel that some slight return had been made for the large fund of valuable information they have imparted, of which it has been my good fortune to appropriate no small share.

Kankakee, Ill., Nov. 11.

[You may be right; but it occurs to me just now that I have seen greasy (or what some call water-soaked) sections come from some colonies, and pearly-white ones from others at one and the same time; but I do not remember to have seen water-soaked honey and white honey come from the same hive.

This matter is something that will stand a little discussion; and I should be glad, therefore, to get reports from some of our leading honey-producers. If the queen is never to blame, it is too bad to pinch the heads of otherwise good queens.—Ed.]

CELLAR WINTERING OF BEES, AND THEIR PREPARATION.

BY F. A. SNELL.

That the successful wintering of our bees depends considerably upon the necessary fall work, no one doubts; and this work, or a part of it, should be done during September or October and November. The work for the earlier dates named are to see well to it that the bees are securing food enough in some way to keep up the rearing of young bees, and also the storing of a good supply of food for the long coming winter months and early spring. During September, if no young bees are reared or the queens are not laying, the colonies should be fed enough to secure this desired state. A good supply of good food for winter must never be lost sight of, and a good force of young vigorous bees must also be secured or had if our bees are to be well wintered.

In cellar wintering it is, I think, very necessary to the best success to have the bees housed while the hives and combs are dry, and free from frost, and just after a good flight has been secured. One fall our bees were housed Oct. 29, and other years from Nov. 10 to Dec. 10. It was about twenty years ago that I laid it down as my rule to put our bees in the cellar right after the first good flight our bees had after Nov. 10. Previously I had been caught by leaving them out too late, and the hives became filled with frost more or less, and hives were frozen fast to the stands, and covered with snow, and the combs with frost — a condition not in the least desirable. In such cases the hives, when removed from their stands, came up with a terrible snap, which aroused the bees, causing a general excitement and roaring. Right after a good cleansing flight the bees handle well; combs and hives are dry; and after two or three puffs of smoke are given each hive the bees are quietly lifted from their stand and placed two colonies at a time on a cushioned cart and wheeled to the cellar hatchway-door, and then removed from the cart, and carried to the cellar where stands have been previously placed, upon which to set the hives, and the hives are gently lowered to the stand. The colomies are thus all carried in.

When a full tier of hives is placed on the first rack in the cellar to be used, lath are placed on top of the first tier of hives, and the second tier of hives placed on the lath, which gives ⅜ inch space between the first and second tier of hives. Lath are placed on top of all rows, over which another tier is to be placed. We tier up three hives deep when necessary in the cellar, leaving room between the hives of each row to readily insert the hands in placing and removing hives on and from the stands or racks. The hive-bodies and bottom boards we carry to the cellar; but the hive-covers are left off, and a ⅜-inch-deep frame covered with burlap or carpet is fastened with two ¼-inch screws at the center of each side of the top of hive-body. The bees thus prepared have upward ventilation, and are kept from coming out at the top of the hives in handling.

After over thirty years' trial in the matter of hive ventilation I prefer some upward, as I find the combs keep much dryer, and with little or no mold, while with no top ventilation the inside of hives and the combs would be wet and moldy, with other conditions just as favorable. Damp or wet combs are bad. The honey and pollen are liable to ferment, and thus endanger the lives of the bees from diarrhea, which may result from the bees eating the fermented food. The frames covered with burlap for upward ventilation are placed on the hives some time before the bees are put in the cellar. The racks are also put in the cellar, so that, if an unfavorable change of weather comes, the bees may be soon put in. The month of November, 1898, was so stormy, cloudy, and changeable, that bees had very little opportunity to fly. During the month our bees did not get a fair flight until the 19th and 20th. On the morning of the 21st it looked very threatening, so I secured help and put the bees in the cellar; and before we were through, light showers occurred; and before noon the rain set in and followed it up all day. The next night the blizzard had struck us, and every thing was covered with ice and snow, and was frozen fast, with the wind blowing a gale. Our bees were in the cellar in good shape, for which we were grateful.

I mention the above to show how well it is for us to watch these important points, and be on time in our apiary work.

While in winter quarters our hives tip forward, giving a pitch to the bottom-boards, so if any moisture accumulates in the hive it may, if condensed, run off the bottom-board out of the hive. The sloping bottom-board also makes it easier for the removal of dead bees by the colony, which tends to keep the hives sweet and clean during winter. In the cellar our hive rows are placed so one can pass between the several rows to examine the bees and clear dead bees from the hives and cellar-floor. This we do about once each month, and with little disturbance to the bees. We use a dim light while doing this—just light enough so we can see to do the work. The cellar should be kept free from mice, and we prefer the temperature at about 42 to 50°, and quite uniform. Bees thus cared for should winter well. The cellar is kept dark.

Milledgeville, Ill.

TALL VS. SQUARE SECTIONS.

A Reply to E. D. Ochsner, Page 752.

BY T. K. MASSIE.

Mr. Editor:—In your footnote to my article published on page 681 you say that part of Mr. Vernon Burt's fine sections came from the Danzenbaker hive, and the other part from the regular Dovetailed hive. Then you say, "Both lots, as I saw them, were equally well filled. Indeed, it could hardly be otherwise; for under the same conditions a 4¼ square would be as well filled as one 4×5 tall." Will you kindly tell us what those "conditions" were? Were they such as can not ordinarily be had? It is *facts* we want, without regard to style or size of section.

In one of Dr. Miller's Straws, page 709, he says I should "keep things straight," etc. That's what I tried to do. I meant to say that I do not want a wired frame at all. I also meant to say that I prefer what most people term a shallow frame, without regard to wiring. All the combs in my frames will stand any amount of handling on the "slambang" plan. They were built from starters only, and are as straight and smooth as a board.

Page 753 friend Ochsner says if I "think the fence separators such a fine thing," I "don't know what a good thing is." Don't be irritated, brother. I have tried your plain tin separators and T supers, and discarded them. It is *facts* we are after. I am not "trying to make money out of any new hives and sections," for I have none to sell; neither did I try to "fool" my customers. I simply set up the two kinds of sections side by side, and gave my customers their choice, the facts being as before stated, page 680. For a complete reply to Bro. O.'s article I would refer to pages 749 and 769 to 770 in regard to what the most extensive bee-keeper in the United States has to say. It is not there stated that he uses the fence separator; but I venture the prediction that he does.

Tophet, W. Va., Nov. 1.

[A part of Mr. Burt's 4×5 honey was produced over Langstroth frames. While the conditions may not have been identical, they were near enough so for all practical purposes. I will say that the internal condition of the supers for the tall and square sections was exactly identical, save in size. Capt. Hetherington does not use plain sections or fences. His 4×5 are the ordinary beeway seven-to-the-foot, I think.

As to the matter of trying to "fool" customers, I can not believe that deception, unintentional or intentional, has been practiced on any one. Such talk is a reflection upon some of the best bee-keepers we have. The fact that one's beliefs or practices may be different from some others' is not sufficient grounds for declaring that that one is not honest with his fellow-men. If we can't agree we should at least fight fair.—ED.]

TALL VS. SQUARE SECTIONS.

Another Reply to E. D. Ochsner, Page 752.

BY S. D. MATHEWS.

Mr. Root:—I see in your footnote on p. 754 you invite kind criticism in regard to hives, smokers, and other articles. As Mr. Ochsner criticises the 4×5 plain 1⅜ section and fence separator, I, being a practical comb-honey producer, beg to differ with him. I think he goes a little too far when he says that the G. B. Lewis Co. has sold 10,000,000 4¼ sections and only 25,000 of the 4×5 sections, and that they consider the 4¼ section the best. Doubtless they have no practical experience with either, especially the 4×5, only in the manufacturing of them; and in a few years there will be more of the 4×5 plain sections in use than of any other make. He says, "What a waste it will be to discard the old supers for new ones!" I have done that very thing, and it paid me twofold the first season. I have used both the square and tall sections in all of my apiaries for five years, and I know from practical experience that it will pay to discard the 4¼ section and use only 4×5 sections and the Danzenbaker hive with the fence separator. They have made enough more this season in the same yard to pay for the hive.

I have made more honey this season per hive than I have any previous year in my 15 years of bee-keeping. Fifteen of my strongest Danzenbaker hives made me one ton of comb honey, and the ones in the 8 frame Dovetailed hive and 4¼ section made a third less. And when it comes to the sales I get more for the 4×5 sections, and I have no work in cleaning them, which I have to do with the 4¼ sections. I ship them as I take them from the supers. Mr. Ochsner says the American people will naturally buy something new. If that be so I always want something new, because I make honey to sell; and any thing that sells the best and for the most money is what I want out of the bee-business (I guess he is not an American is why he prefers the old supers with 4¼ sections, as he calls them).

I should like to have him ship some of his 4¼ sections to some of our eastern markets, such as New York, Philadelphia, Baltimore, Richmond, and Washington, especially the latter, and put them beside my 4×5 sections, and see how he would get left. I have just received sales for some from there at 16 cts. per section wholesale, and others are selling at from 10 to 13 cts.

He says, again, American people like to be humbugged. Perhaps that is why he uses 4¼ sections with tin separators, as I know I should be humbugged if I used them. He hits American people so hard that I can't think him an American.

I see in your footnote on page 681 you say the square sections would do as well as 4×5 sections under same conditions. What are those conditions? I have a lot of 8-frame hives with Hoffman frames with supers for 4¼ sections for sale cheap, because I know of no condition where I can use them to make it pay me as well as the 4×5 section.

Hamilton, N. C.

[By "same conditions" I mean the same style of section (either beeway or no-beeway, same kind of separator or fence, the same kind of foundation, and the same honey-flow. The absence of any one of these conditions would render the comparison unfair. There seems to be more feeling (or ill feeling, rather) developed over this matter than is necessary. The opponents on either side should let the other fellow have his own preference.—ED.]

POINTERS ON QUEEN-REARING.

Sealed Brood vs. Unsealed Brood to Coax Cell-building; Making the Cell-cup Bottoms; Giving Nuclei Water.

BY W. H. PRIDGEN.

There has been a hive in use at Creek all this season, divided into three divisions, the division-boards having openings 3 × 8 inches in the center, with zinc tacked over them. Instead of using it as you do, I use it as an upper story, and have had cups accepted in the center apartment while there were cells in the others, as described, so far as cells are concerned, in Jan. 15th GLEANINGS by Mr. Doolittle. As soon as I read his article it occurred to me that it might be better thus arranged, and would remove the possibility of losing so many cells by an accidental virgin queen.

I wish you would ask Mr. Wardell to make some cups with bottoms the right shape to receive cocoons, and transfer the larvæ with the cocoons, selecting that which is too small to transfer otherwise; give them to bees shaken from combs of brood, having a queen six hours previous, and then 24 hours later give them to his cell-builders, and note the difference, if any, and write me his conclusions. He could also transfer some the same size now used, and leave off the giving of them to queenless bees for 24 hours, and see whether they are accepted as well. The plan suggested mutilates the combs worse, but would save the cells destroyed to succor the royal jelly *a la* Doolittle. Possibly he has noticed the illustrations sufficiently to be able to make the stick used in transferring cocoons.

One is liable to succeed best in the way he wants to do a thing, and that may account in a measure for my success in transferring cocoons; but I should like to have him try it if he has not, as many have reported success by this plan who failed in transferring larvæ only. One man who succeeded by transferring cocoons expressed doubt as to Mr. Doolittle's rearing his queens as he advised others to do.

I now give just hatched queens instead of cells to my nuclei, often during a flow the same day the laying queen is removed, and seldom have one rejected. It not only saves several days' time, as the cells often fail to show up a queen at the appointed time, but there is nothing about the work that I enjoy more than distributing fine young queens, and being able to reject the faulty ones without having to lose any time over them in the nuclei.

I am of the opinion that, if Mr. Wardell will separate a little two combs of sealed and hatching brood, and also two of unsealed brood, as well as make examinations where they are naturally spaced, he will find more bees clustered on the combs of sealed and hatching brood. I do not find that they have a preference for building cells naturally, on combs of unsealed brood, or near it, and in all probability the cells get more attention where the brood needs none in the matter of feeding.

I supply one comb of water placed at one side of the hive when the bees are screened in, and there is pollen in the combs, and a comb one-fourth full of lumps of starch, sugar, and water mixed, when there is but little or no pollen. Enough water to cover the starch is sufficient, and then stir thoroughly and add as much sugar as will dissolve. I got this idea by noticing how eagerly the bees work on starch thrown out about the laundry during a scarcity of pollen. Neither do I want to make the impression that I condemn the practice of placing combs of unsealed brood near the cells while being built, but simply called attention to the fact that more bees cluster on combs of sealed than unsealed brood; and I am not sure but that sealed and hatching brood next to the cells is just as good.

Creek, N. C., Aug. 7.

ANSWERS TO SEASONABLE QUESTIONS

BY G. M. DOOLITTLE

EMPLOYING THE TIME IN WINTER ADVANTAGEOUSLY.

Question.—As I consider it, my bees are all fixed for winter, my 20 colonies being all nicely tucked away in their chaff hives, each having from 25 to 30 pounds of sealed stores. Can I do any thing further along the "bee line" till spring? I do not wish to make up sections, or prepare many hives till I know how my bees will come out, for so many of them may die that I shall want no more hives and sections than I have on hand now.

Answer.—Now that we are in the midst of long winter evenings, it becomes the duty of all to spend these evenings in such a way that they may be gaining in knowledge along the line of the pursuit they have chosen in life. In no business engagement is this more imperative than where the culture of the bee is the chosen occupation, and in no way can this be done to any better advantage than in reading the bee-literature of the day, from which the mind is to be stored with useful knowledge which can be put into practical use as soon as the season of 1900 opens. When I first commenced bee-keeping I was greatly benefited by the writings of Elisha Gallup, L. L. Langstroth, Moses Quinby, A. I. Root, Adam Grimm, and many other of those early writers on this subject, for by their writings I learned my A B C in bee culture.

My first year of experience in bee-keeping by way of putting the things which I had read in practice, resulted in 12 pounds of comb honey and one swarm, from the two colonies I purchased to commence with. The next season I obtained 25 pounds of surplus from each colony I had in the spring, on an average. At the end of the fourth season I chronicled an average of 80 pounds of comb honey as the average surplus for each colony in the spring, while at the end of the eighth season my average yield per colony was 166⅔ lbs. During these eight years I had studied, read, and practiced all my wakeful hours, about bees, having great fun and keen enjoyment in doing the same, for I have never yet spent an hour (been in the bee business 30 years) in my life in work pertaining to bee culture without its being a real pleasure to me; and this was brought about by those winter evenings when I first began to read up the subject. Many and many have been the nights when I was awake from one to three hours, planning how to accomplish some result I desired to achieve in regard to the practical part of apiculture, which, with the help of what I had read, caused me to accomplish what I had sought after. During all of the years which have passed I have found that, if I would succeed, as far as possible I should read mainly those books and articles which come from the pens of practical bee-keepers — those whose ideas come from their daily work among their bees rather than from theorizing while sitting at the writing-table, for the former were the ones who made a success of their calling, and told just how they did it. If you wish to learn farming, to whom do you go—to the man whose farm is allowed to grow up to weeds and briers, with buildings unpainted and fences down, or to the man who produces good crops each year, has his fences up in good shape, with his buildings in attractive style and in good repair? To the latter, of course; and so you should do in bee-keeping. I am well aware that many of our most practical bee-men do not write for publication, and for this reason we can bring in visiting, during the winter, as another help along this line of our qualification. But when we visit we should try not to be a bore by staying two or three days, and during the whole time asking questions which are solely for self-benefit, for that can not be called visiting in any sense of the word.

Some years ago a man came some distance to see me. I was sick, and confined to the house, yet was able to be dressed and lie on the couch during the day. After warming himself for a little he told me he had come to have a little talk about bees, when he immediately pulled from his pockets eight sheets of foolscap paper, written over on both sides, with questions which he began asking in a dry, tiresome way. As soon as I gave an answer he began to write it down; and if he could not remember all I had said he asked over and over again, wishing me to go into the minutiæ of the thing while he took it down. I stood it (or, rather, lay), facing him for two or three hours, till I thought I was too sick and tired to be held in that way longer; and as he seemed to take no notice of the condition I was in I thought I would give him a hint, so I turned over on the couch with my back to him. As soon as he got through writing down the last answer I had given him he very quietly took his chair and came around to the other side of the couch and asked the next question. I stood it an hour longer, when I had to go to bed, completely exhausted, after which he asked my wife if she did not think I would be rested enough in an hour or so to visit (?) with him again. Well, to make the story short he stayed that day, all night, and the greater part of the next day, during which time I was able to answer all of his questions, he taking the answers down, and in departing I had the consolation of hearing him say to Mrs. D. that he had had a good visit, and that he was very thankful for the good entertainment she had given him.

When you go to visit any bee-keeper, make it a *visit*, by imparting something as well as in receiving something. And don't try to get too much at once, for a little well learned is much better than having so many things come before you that you do not half remember any of them. Then we have our bee conventions, which are mainly held during the winter months, and for the especial purpose of gaining knowledge ; and while the cost of attending may be considerable, yet if we improve the time as we should we can learn more than enough to make that cost good, besides the benefit which we derive socially. All of these things are great helps to us, and should be eagerly sought after, as they will be if we have a natural qualification for the calling which we have chosen. If any persons love something else more than they do to study bee-keeping, and only do this as a sort of duty, let them be assured that they have mistaken their calling, and the sooner they leave it and go to that which at all times gives them pleasure, the better they will be off, and the better it will be for the world.

But I feel that I should say a word to our questioner about putting off getting ready for next season till he knows how his bees winter. I can not help thinking that this is a mistake on the part of very many. The question should be, "Am I to continue in the bee business?" If so, then I must be prepared for a *full* honey-harvest from the number of colonies I have; otherwise, that *full* honey-harvest may come and find me "napping." My plan has always been to prepare hives to the number I wish to increase my colonies to, should the coming season be the *best*, and sections to the amount of 125 pounds for each colony I have in the fall. And I do all of this preparing during the winter months, getting every thing all in perfect order before the season opens, so that, when the time for active labor in the apiary arrives, I shall not be handicapped by not being in readiness for any "down-pour" which may happen to come.

HEADS OF GRAIN FROM DIFFERENT FIELDS

BEE-KEEPING IN COLOMBIA, S. A.; STINGLESS BEES.

1. Do you think it possible to send queens down here?

2. We are in need of bees here on account of lack of distribution of pollen in the flowers. We are 3500 feet above sea-level; temperature 60° Fahr., on an average. Do you think bees will do well here?

3. We have a bee here resembling the Italian, but which has no sting. It is not a good worker. Would it be possible to breed them with Italians, or has it ever been done—that is, form a new species or kind?

J. R. Genuit.

David, Chiriqui, Rep. of Colombia, S. A.

[We can send queens successfully to you, I think, providing there is no great interval between the time of arrival of the queen at port and arrival at your hands. We have sent queens successfully to Australia, New Zealand, and within the last two days have received acknowledgment of the successful receipt of queens at Natal, South Africa. We send queens regularly to Cuba, Jamaica, and to other islands of the West Indies. While we do not guarantee safe arrival, we put up our queens in the most approved forms, and would say that at least half of the queens sent to foreign ports by us go through alive and in good condition. Although you are located, as you say, at an elevation of 3500 feet above the sea, with an average of 60° Fahr., I do not see why you could not keep bees successfully.

The stingless bees are in no way to be compared to the Italians, nor in general to the *Apis mellifica*, to which blacks, Italians, Syrians, and Cyprians belong. You could not cross the stingless bees with the Italians nor with any of the other bees of a northern locality.—Ed.]

QUALITY AND QUANTITY IN QUEENS.

On page 746, in a Straw, Dr. Miller says, "It's a good plan, when you take a super of sections off a hive, to pencil on one of them the number of the colony. Then when you find a super of greasy-looking sections you know where to replace a queen next spring." Then you add, "Good scheme! and while you are about it, it is a good point in favor of numbering hives" Both are good points; but I think you both have missed the most important point—one that I have aimed at practicing for years; and that is when you find one of those exquisitely filled and finished lots of sections that excite wonder and admiration, and capture the first prizes at our leading expositions. You know where to go for a first-class queen to breed from next season; for, in my experience, bees that do that sort of work never fail to be extra honey-gatherers. Then we have quality and quantity.

S. T. Pettit.

Aylmer, Ont., Can., Nov. 11.

INTRODUCING QUEENS; THE WIRE-CAGE PLAN A FAILURE.

To R. A. Lapsley, page 762, I say, amen. I have repeatedly failed, and never succeeded, by that plan; that is, the queen would be eaten out and the bees would accept or reject just as they liked. I have no more use for the plan in question.

The last plan given by Dr. Miller, on page 725, 1892, is the best I ever tried for valuable queens. The only objection is the necessity of putting brood above an excluder a few days before the introducing is done, so you will not have unsealed brood to perish, with no bees old enough to feed them. But it saves the queen—that is what we want.

I should be glad if breeders would clip all queens sent out. I have never had one fly away when introducing, but came near losing several.

W. A. H. Gilstrap.

Grayson, Cal., Oct. 31.

ALCOHOL-LAMP FOR DAISY FASTENER.

I use an alcohol-lamp with the Daisy foundation-fastener. No chimney is needed, and there is never any smoke to soil the sections. The lamp costs 25 cents, and wood spirits about $1.25 per gallon.

E. E. Bogue.

Stillwater, O. T., Nov. 8.

EDITORIAL
BY
E. R. ROOT

WHAT do you think of our Christmas issue?

SIXTEEN extra pages in this issue, and yet there is still on hand a lot of good matter that had to be held over.

SOME of these editorials in this issue are written at the rate of 60 miles an hour—that is to say, they are scribbled off on a Pullman car going at that rate from Denver to Chicago via the Union Pacific and the Northwestern. If my thoughts appear somewhat joggled (my writing is surely that way) you will please lay it to the aforesaid break-neck speed.

MY route to the Denver convention was over the Lake Shore and Michigan Southern, Chicago and Northwestern, and Union Pacific. Over the last two roads I took what is known as the Colorado Special, one of the fastest trains in the world; and the route as a whole in a modern sleeping-car was one of the easiest and smoothest I ever took.

GOOD FOR "LUPTOM."

AS far as we have been able to learn, Mr. Luptom has either sent queens or returned the money; and my impression is, the lesson he learned in this transaction will probably last him as long as he lives. If this be true, shall we not forgive and forget? and remember, "There is joy in the presence of the angels of God over one sinner that repenteth." A. I. R.

THE COLORADO CONVENTION.

THE convention of the Colorado State Bee-keepers' Association was a success in every way. The attendance was good, ranging from 50 to 80; and the discussions, always spirited, were along practical lines. Instead of there being a regular set program, a program committee provided a set of topics for each session, assigning subjects to such members as would be the most competent to take them up. The plan worked admirably, for the association is made up of live bee-keepers who can talk from an extended experience. A report of the proceedings will appear in our next.

OUR INDEX FOR 1899 GLEANINGS.

THIS, our Christmas number, is a little late, partly because I have been away and partly because of an extended index that has to be made up and prepared, very largely at the last minute, when the whole volume for the year is complete. And speaking about the index, you will find it, perhaps, the fullest that we have ever given. Subjects of importance are cross-indexed, so I believe our readers will be able to find any thing with little or no difficulty. With the exception of the index of correspondents I dictated the whole to W. P., or Stenog, and then it devolved upon the latter to arrange the whole in alphabetical order.

But a good index is worth nothing unless the whole volume is preserved and kept in regular order. Get the whole 24 numbers, place one upon the other in regular order, and if you have no better files drive two wire nails of suitable length through their back edges, and clinch. Better still, get our regular binder which we can supply at 82 cents postpaid, or the same leather-backed for 92 cents.

A NEW KODAK FOR GLEANINGS.

IN my trip through Colorado I carried a brand-new folding kodak with all the latest attachments, for I felt that an illustrated journal like GLEANINGS required one of the very best that money could buy; and of all the cameras I have ever seen, the Eastman Kodak Co. get out the best. With this instrument I took "snap shots" and "time views," some of the latter being taken in a dust-storm when there was a little lull in the wind and the dust. I find I have secured something like 60 exposures in all, the best of which will be reproduced in these pages during the coming year, so that my Colorado trip will be spread out through the succeeding issues of GLEANINGS for the next four or five months. Considering the fact that Colorado is one of the greatest and best bee localities in the world, the series ought to prove interesting.

HUTCHINSON AND YORK.

I HAVE several times spoken of the pleasant relationship existing between the editors of bee-papers. This editorial fellowship is especially strong between Editors York, Hutchinson, and myself. I have gone to conventions with both, in the same sleeper, and have bunked with each, both in the car and at hotels, so that I have come to know them intimately; and it gives me special pleasure to say that they are royal good fellows, genuine rivals in a business way, but the rivalry is of the pleasantest sort. We know each other well enough to offer criticisms of each other on the quiet and in the open; and in every instance, so far as I know, these criticisms have been taken in the kindly spirit in which they were offered.

Mr. Hutchinson started the *Bee-keepers' Review* at a very inauspicious time, as it seemed to me. Indeed, it was up-hill sledding for him for a long time; but with that indomitable perseverance that is characteristic of its editor, the *Review* has moved onward and upward until there is not a trade journal of any sort that excels it in typographical neatness and general appearance. The *Review* to-day enjoys the largest patronage, I believe, it has ever had since its first issue; and no one rejoices more in that success than does your humble servant.

The "Old Reliable" was purchased by Mr. York of Thos. G. Newman at a time when the latter was steadily declining in health, and found it necessary to seek a change of occupation and location. While the *American Bee*

G. W. YORK.

MISS HUTCHINSON.

W. Z. HUTCHINSON.

Journal has always been a standard publication, it now stands head and shoulders higher than it ever did before. Always typographically neat, always punctual, a practical, up-to-date weekly, it fills a niche by itself, for no other bee-paper has "sand" enough to make weekly visits.

Miss Hutchinson (the whole family for that matter) has contributed in no small degree to her father's success, and it is also with no little pleasure that I present her picture — with the other two editors, I was going to say. Who knows but she may some day slip into her father's editorial shoes, just as another has done?

I take pleasure, therefore, in introducing to you Editor G. W. York, of the *American Bee Journal;* Editor W. Z. Hutchinson, of the *Bee-keepers' Review*, and Miss Editor, or, perhaps, more properly speaking, Miss Compositor.

THOSE PRIZE PICTURES.

IN our last issue I promised to set before you the series of prize pictures entitled "A Good Catch." Well, here they are. I agreed that I would not give the names of the young ladies whose faces and figures grace our pages, and I shall stick to agreement; but if any good-looking bachelor without gray hairs or baldness (and we have lots of them in our ranks) desires to know their whereabouts, he *might* possibly get their names by writing to those who took the pictures of the subjects.

One of the pictures, the fourth of the series, is what is called a wash-drawing, and is therefore an ideal picture in that it depicts a scene that is photographed first on the artists's mind's eye.

While it was "nip and tuck" between three of the pictures, the photograph by Mr. W. Z. Hutchinson was given the first position because of the "foliage background" that so artistically sets off the rest, or principal part of the picture.

The first prize picture appears as a frontispiece in our A B C book; and the one by J. O. Shearman will appear in our honey-leaflet along with a series of other engravings showing the various stages of the art of producing honey.

LOCALITY, AND ITS BEARING ON BEE-KEEPING IN COLORADO.

LOCALITY is often made to cover up a multitude of sins — or, rather, a multitude of opposing opinions of various bee-keepers. While it does, no doubt, account for many of them, more of these diversities may be traced to pure prejudice and preconceived notions. Yet if there is any place in the United States where locality does necessitate a change in methods it is in Colorado.

When a bee-keeper moves from the East to that State he must unlearn some of his old plans of work, and adopt new ones. The altitudes of some portions of the State; the absence of rain; irrigation; an entirely different flora, all go to make up a different set of conditions. While the average temperature in winter is about the same as in Ohio, yet, on account of the absence of moisture in the atmosphere, colonies may be wintered in single-walled hives with only a thin layer of absorbents on top. Indeed, I was told that double-walled hives and an excess of packing is worse than useless. Colonies packed as we prepare them in this locality would not winter as well as in single-walled hives. A dry cold atmosphere is not nearly so destructive to bee life as the same temperature here with moisture. If I had been chilled through in Ohio as I was on occasions in Colorado I should have had a severe cold; but no bad results followed in that dry State.

The matters of spreading brood, and early spring preparation, have to be handled in an entirely different way.

The effect of the dry climate on the hives, especially hive-covers, is simply astounding to a tenderfoot. Indeed, I never could have believed that lumber would shrink from ¼ to ⅜ to the foot, and that nails would actually work clear out of the boards, if I had not seen just these things with my own eyes.

Moth-millers are unknown in Colorado, and, as a consequence, no fear need be entertained that combs and comb honey will be damaged by any such sort of pest.

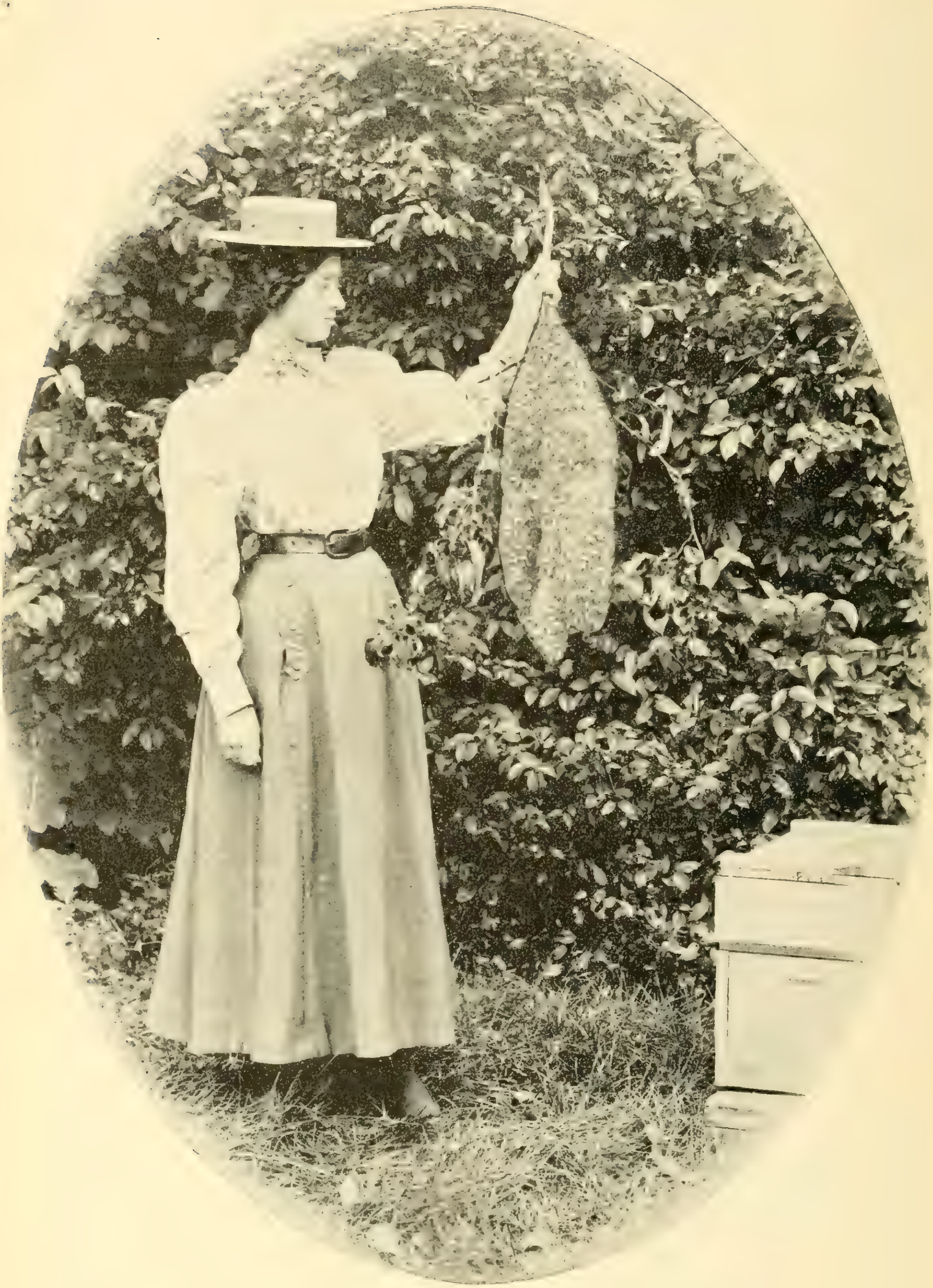
Black bees are another minus quantity in the State. I was surprised to find in all the yards such nicely marked Italians everywhere.

There are other queer conditions, but to these I shall refer in future issues.

THE WILD AND WOOLLY WEST; BEE-KEEPING IN COLORADO.

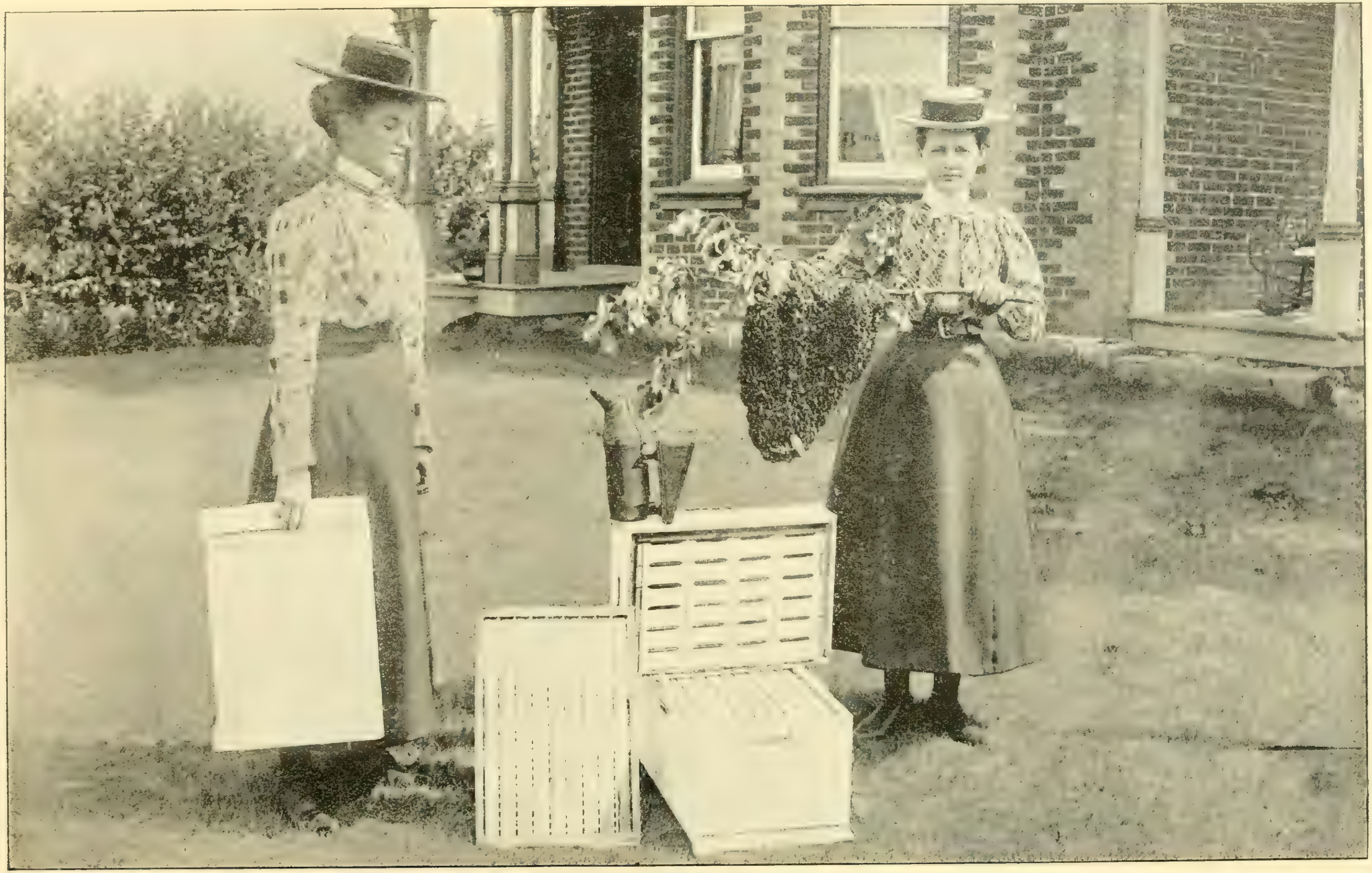
ALMOST as if it were a delightful dream I look back upon my ten-days' sojourn in Colorado—a land of the barking prairie-dogs and howling coyotes; of the awe-inspiring Rockies with their lofty peaks; of gold and silver, of copper and iron, of alfalfa and sweet clover; and, not least, the land where the sweetest and finest and thickest honey in the world is produced. The ordinary magazine article would lead one to believe that the "wild and woolly West" consists of fighting "Injuns," six-shooter cowboys with their bucking bronchos, desperado miners filled with poor whisky, and—some other folks living in tents, prairie-schooners, huts, or dugouts. The fact is, the ordinary writer sees only the unusual and the extraordinary; and when he attempts to enlighten the "tenderfoot" he makes it appear as if the great plains and the mountains were filled with this kind of folk, when, in fact, it is only a very small part of the real population.

As to cowboys, I didn't see one real live specimen. Miners I saw, lots of them, but they appeared to be real gentlemen in soiled work clothes. Of bee-keepers I saw many more, but only a small portion of the actual number in the State; for I am informed by Sec. Rauchfuss, of the Colorado State Bee-keepers' Association, that there are 2000, by count, notwithstanding that only one-tenth of the State is in actual cultivation. Bee-keeping is confined almost exclusively to the irrigated regions where alfalfa is grown. But of this I shall have more to say at another time.



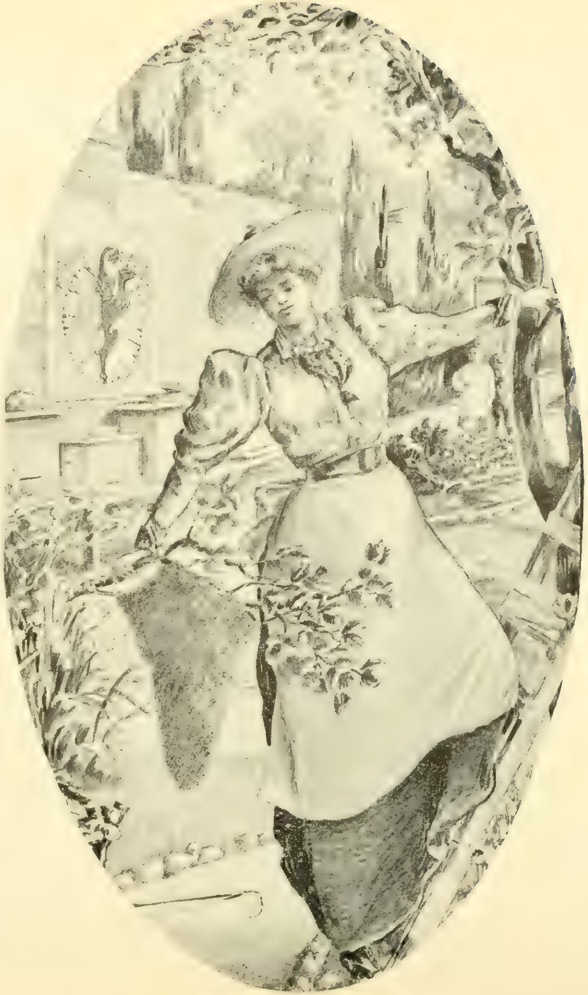
A GOOD CATCH—FIRST PRIZE, $10.00.

Photograph by W. Z. Hutchinson.



SECOND PRIZE, $5.00.

Photograph by A. L. Lundy, Wilsonville, Ont., Can.



THIRD PRIZE.
Drawn by R. V. Murray, Cleveland, Ohio.

SECOND PRIZE, $5.00.
Photograph by J. O. Shearman, Hamilton, Ont.

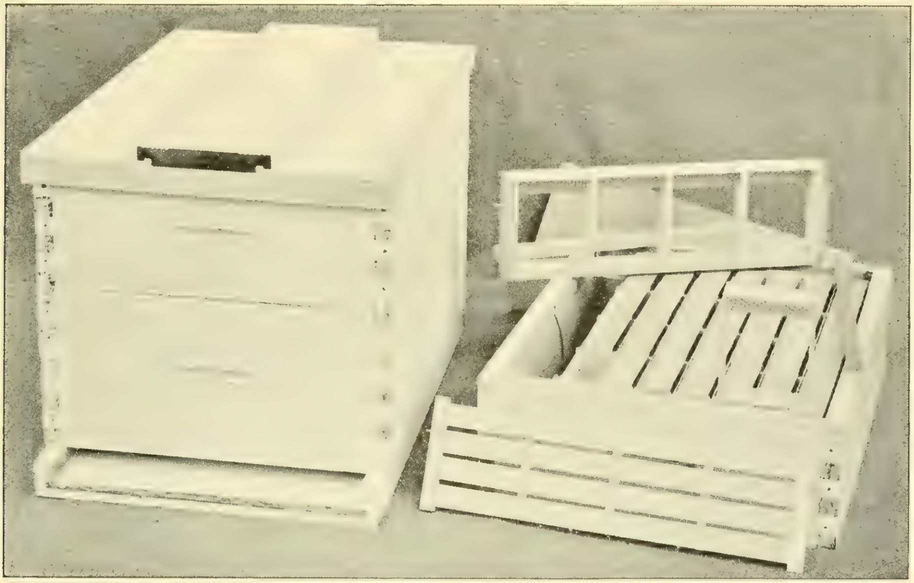
While the villages are distinctly Western in general character, the cities seem to be just as distinctly Eastern; for, indeed, they are made up of eastern people and eastern capital. Under the influence of the bracing climate and new conditions the western centers of population seem in many respects to surpass their eastern rivals. This is particularly so of Denver. The streets are broad, and the buildings are either of stone or brick; indeed, there is scarcely a wooden structure in the whole city.

Situated as it is in sight of the Rockies, with their snow-clad peaks,* and itself on high ground a mile above sea-level, it is at once in one of the most healthful and picturesque locations in the world. Almost perpetual sunshine and dry mountain air have drawn thousands of people of wealth and culture to this metropolis of the West. Many an invalid has gone there and been restored to complete health. In fact, the majority of the people I met seem to have flocked to Denver because they could live nowhere else. Not a few bee-keepers were in this class, and it is remarkable what elevation and climate have done for them.

And this reminds me that Denver and vicinity form one of the greatest bee-keeping centers of the whole world. There are a great many who own anywhere from 100 to 200 colonies; and not a few who own and operate from 400 to 500. During the ten days that I was in the city I made short tours out into the outlying country to see some of the bee-keepers in their homes. In future issues I shall have something to say of these little trips. My ever faithful kodak, together with my note-book, took in many an idea, and these will be given to our readers.

CLOSED-END FRAMES AND THE DANZENBAKER HIVE.

In my recent trip through Colorado I learned that the Rauchfuss brothers, Frank and Herman, are and have been using closed-end frames in the regular Dovetailed hive, with a great deal of satisfaction. They realize that, to advocate such an innovation as this for the West, is almost heresy; but they say they get their combs built clear out to the end-bars, and clear down to the bottom-bars—something that they can not accomplish with the ordinary hanging frames with open ends or partly open ends;* and, what is more, they claim that they can handle these frames more easily than the regular Hoffman. I said to Frank, "Why, don't you urge these upon your bee-keeping friends?"



THE DANZENBAKER HIVE AND 4 · 5 PLAIN-SECTION SUPER.

"It would not do," said he; "they would not take them."

For several years the Danzenbaker hive has been sold with closed-end frames; in fact, it is the only hive on the market so equipped. It is constructed practically the same as last year—the only difference being in the cover. This, like the other, is of the three-piece type, the two side-pieces or boards not being beveled or slanted off to shed the water. That is to say, they are of the same thickness, ¾ inch throughout, except at the extreme of one side, and are so constructed that the water will run off at *the ends* and not at the sides. Like the Excelsior cover for the 1900 Dovetailed hive, they have shoulders or projections that reach up into corresponding channels in the ridge-board, thus making it impossible for water to get through except by running *up hill.* To hold the three pieces together, there is a cleat at each end let into grooves so situated that its top side shall be *under* the surface of the boards. The cover, as a whole, may be nailed to permit of the swelling and shrinkage of the boards, without checking or splitting at the point where the nails enter.

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* Pike's Peak, Long's Peak, Gray's Peak, anywhere from 25 to 100 miles away, can be seen on clear days.

* I looked over quite a number of these combs, and this statement is literally correct.

The closed-end frames and the super are the same as those put out in hives of previous years.

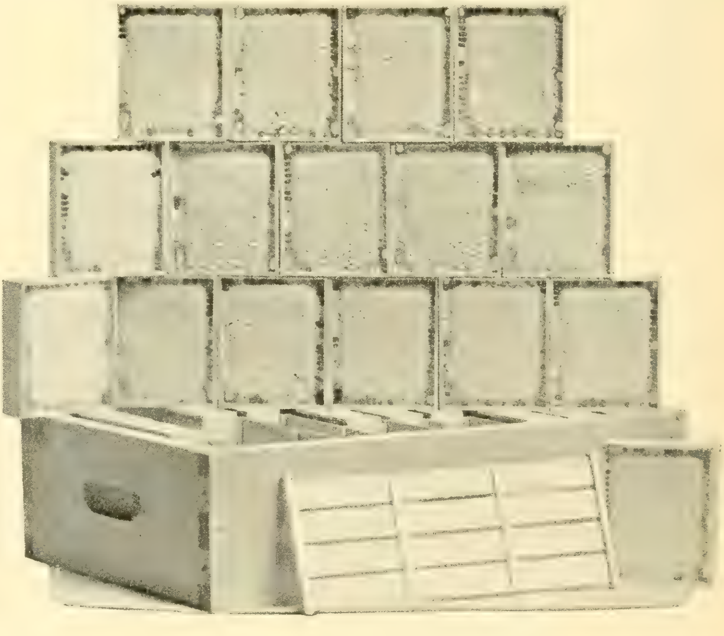
The bottom-board is of the Danzy type, reversible, to give ⅜ bee-space on one side and ⅞ on the other.

The hive itself is of the same dimensions exactly as the regular 10-frame Dovetailed Langstroth, except in depth. It takes a closed-end frame 7 inches deep instead of one 9⅛ like the standard L. This gives a low-down flat hive with large super capacity, and of about the same cubical contents as the regular 8-frame Langstroth brood-chamber, but permits of the use of 10-frame supers and 10-frame L. bottom-board ; and to this extent the Danzenbaker is interchangeable with any 10-frame hive of standard dimensions.

PRODUCING COMB HONEY CROSSWISE OF THE BROOD-FRAMES.

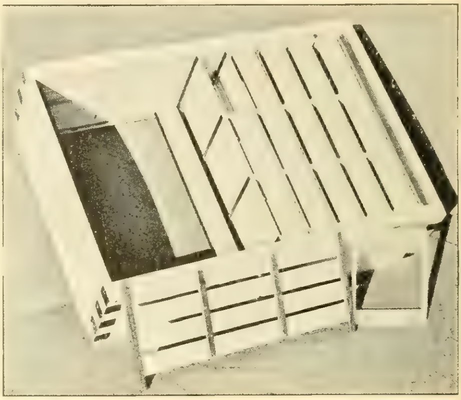
SOME two months ago Mr. Louis J. Whitney, of Mapleton, Utah, sent a photo of some 4×5 honey, together with the super in which the same was produced. We have sold such supers for a number of years, but have always had a fear that the edges of the combs next to the super side would not be as well completed as those adjacent to the center ; but the photo seems to indicate that there is no perceptible difference. Mr. Whitney says the honey stacked up on the super is the poorest out of a lot of 30 from the same super.

As the 4×5 seems to be preferred to the 3⅝×5, we finally decided to put out a super for 1900, the sections running crosswise of the same; for 3 sections 4 inches wide just fill out the width of the super, which is 12⅛ in., the extra ⅛ allowing for a reasonable amount of play. If the hive is properly leveled up there is no reason why comb honey could not be produced on this plan, and give good results. The super for 1900 is shown above.



SECTIONS FROM A CROSSWISE SUPER.

In some apiaries it is the practice to have the hives tilted so that the front is slightly lower than the rear. On hives so placed, full sheets of foundation in sections placed crosswise might hang a little out of true. While theoretically it would seem to be good practice to tilt all hives forward, yet in actual practice there is very little in it.



EIGHT-FRAME SUPER FOR 4×5 SECTIONS.

It is not practicable to use 4x5x1⅜ sections in an 8-frame super, running parallel with the brood-frames, for the reason that the 1⅜ thickness does not come out right with the width of the super ; but by running them crosswise we secure the greatest economy of space and yet get 30 sections in the super — within two as many as we can get in the ten-frame size with sections running the other way.

OUR HOMES,

BY A. I. ROOT.

But and if that evil servant shall say in his heart, My lord delayeth his coming; and shall begin to smite *his* fellow servants and to eat and drink with the drunken; the lord of that servant shall come in a day when he looketh not for *him*, and in an hour that he is not aware of, and shall cut him asunder, and appoint *him* his portion with the hypocrites: there shall be weeping and gnashing of teeth.—MATT. 24:48–51.

"I dreamed a dream that was not all a dream." This quotation came vividly to my mind when I awoke this morning, and I have been thinking about it more or less all day. The day before had been a very busy one, and I had been hurrying here and there, giving hints to this, that, and the other one, looking after things that nobody seemed to feel responsible for, although each one seemed to be quite willing to take up the matter in hand when I explained to him why it must be attended to before the coming winter. Well, in my dream I was making all the rounds as usual. Away down at the further end of the lumber-piles—that is, those furthest from the factory and nearest the carp-pond—somebody called my attention to a little fire in some straw near the lumber-piles, and he said it should be looked after. It was but a *little* fire, and a pail of water would have put it out. But there was no pail near, and there were none of my usual helpers who knew where to get a pail and where to get water. I was already pretty tired, and I can not run as I used to, even in case of a fire. There were dozens of workmen just a little way off; in my dream I saw them scattered all through the lumber-piles all over the premises. Some were taking lumber from the cars, others were loading up finished work. Farmers were there with loads of basswood. The scene was refreshing — that is, so far as seeing so many busily employed was concerned. I called to a boy whom I did not know, or at least did not know very well, and asked him to get a pail of water quick, and I pointed to the fire. To my astonishment he did not seem to be very much interested in the matter, and asked where he could find a pail. I was going to tell him to go to the barn; but a man who does not know any thing about the barn would blunder around until the fire would be in the lumber-piles. I looked in vain for one of the men who take care of the horses, but I could not see any of them. Then I thought I might put the fire out with a piece of board—a thing I have often done, to the surprise of the bystanders; but when I went around one of the lumber-piles I saw the fire had crept along out of sight, and was already climbing up the pile of lumber. A brisk west wind came up, and the fire was mounting rapidly to the top. The boy who asked me where he could get a pail had resumed his work of piling lumber. I began to yell "Fire!" and asked those nearest me to "holler" also with all their might, and to get somebody to pull out the hose and attach it to a hydrant not very far off. But the only reply I could get was, "I do not know any thing about your hose and hydrants, and I do not think that this little fire will do much harm anyway." Oh how I did long for Frank or Herb, or Ernest or John! I reflected that Ernest was absent in Denver at the convention, and he knew more about the waterworks than almost anybody else. John, with his great strength and energy, would have been a power if I could only have got word to him or got *hold of him*. The foreman of the machine-shop, who has all the waterworks at the ends of his fingers, was probably busy with the work that begins to be hurrying for next year, and knew nothing about it unless he could hear the yell of fire, but nobody would help me give the alarm.

My voice has been failing of late. It fails in this way: When I try to explain things or give directions in the saw-room and among the machinery, the effort to make myself heard exhausts my strength, mentally and physically. I have sometimes thought that, with the effort required to talk when there is so much noise, I ought not to *try* to talk, for it has seemed that this and nothing else brought on my nervous chills. I often call the foremen of the different rooms away from the noise of the machinery — sometimes outside of the door, rather than to strain my voice and hurt my throat—yes, and make me "tired" by trying to talk amid such clatter. Perhaps I might as well confess that the noise of children when I want to say something vexes me of late, unless I try very hard *not* to be vexed, especially when the children yell at the top of their voices just for the sake of using their lungs when there is no sort of need of such muscular effort. Their young muscles need using for their better development.* Mine need rest because they have been overtaxed.

Well, I had the same feeling about the fire. I was rapidly using myself up, and nobody took much if any interest in the matter. For quite a spell they said it was only a *little* fire, and it would not do any harm. But finally, as it climbed and crackled from one lumber-pile to another, when somebody told me he did not believe they *could* put it out if they tried, and kept on with his work I began to get mad. My Root temper (partly on account of my fatigue) was rapidly rising. I said to some of them, "What is the use of your piling lumber or loading cars when they will all be burned up in a few minutes, unless you turn in and help put out the fire?" But they did not seem to care. It was not *their* lumber, and they were not hired to do that work. The fact that they would probably be out of a job on the morrow did not seem to have any interest for them whatever.

To cap the climax, just about this time a very bland-looking gentleman came along with a smiling face, and put out his hand, saying he had for long years looked forward to the pleasure of shaking hands with A. I. Root. I was hoarse with over-exertion, and I do not know but I was somewhat hoarse from the effects of passion. But I managed to say, as civilly as I could, "My dear sir, I have no time to shake hands with *anybody* until this fire is put out;" and as he stood there with his hand extended, partly blocking the passage, I ordered him out of the way. But he was not so easily put off. He said he wanted only a *minute* of my time, and he hoped I would *surely* shake *hands* with him. "No, sir, I *will not*. If you are any man at all, just turn in and help me yell fire, and get our people here to subdue it before it goes a minute longer."

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*Oh how I longed in my dream for these same grandchildren or anybody else who could yell and halloo, and "raise the roof," as the expression is!

But he kept on; and some of the others who were so busy piling lumber suggested that it would be a "long time" before the fire got up to where *they* were, anyhow. I believe I have generally had a pretty good opinion of humanity—at least I have tried to have; but at this crisis I stood *appalled*. Was it really possible this world contained so many people who would stand by with such indifference when anybody of sense could easily see that our *whole possessions* would be wiped out in one hour at the rate the west wind was making the flames leap from pile to pile? and yet I was not able to get a *single* soul to do a *thing*.

The smiling gentleman who looked so good-natured in spite of the way I treated him, got in my way again, and begged for just a minute. At this crisis I yelled to him to get out of the way or I would strike him.

"Why, dear Mr. Root, you can not be in your senses when you speak so to a stranger who has come a long way to see you—one who has read your Home Papers with such pleasure and profit all these years." But in spite of my Christian teachings I felt more inclined to mash his disagreeable face, and take the smile out of it (if it were a possible thing) than I ever felt tempted to do any thing before in my life. He still urged that what he had to present would take but a minute, and actually whipped some papers out of his pocket for me to look at. I told him the time he had already occupied had enabled the flames to get such a headway that perhaps they *could* not be stopped; and then it dawned upon me I was stopping to quarrel with a man while my property was burning up. I might have reached the factory or the machine-shop certainly, if I had started out on a good run when I first saw the flames. I do not know where my wheel was just then. It did not seem to be along. Two or three times something whispered to me in my great distress that it was but a dream or "a vision of the night;" but I looked again, and the sound of the crackling flames which had *already* driven the workmen from their places was a reality if any thing *ever* was. Then I awoke. It was already past five in the morning, and five is our usual hour of getting up.

Now, then, about the part that was not *all* a dream. Ever so many times to-day I have fallen to wondering whether it *is* possible my dream was not a pretty true picture of humanity in some respects. Just before going to bed I looked over the daily, and eagerly scanned the message of the President to see if he had in it a word for temperance. I did not find it. The next paper I picked up was a little sheet called *The Open Door*, published at Knoxville, Tenn. Well, in that paper I find the following. I do not know whether it had any influence on my dream or not. If it did, it influenced me unconsciously. Here is what I read:

> A hungry tramp who steals a chicken is a thief. A man who picks your pocket is a thief. The man who abstracts the ballots from a box and thereby elects his friend to office is a thief. The man who spirits away from its proper place the act of a legislature and thus prevents the enactment of the law is a thief. Congress passed a law prohibiting the army canteen-saloon. The intent of the law was well known, the language plain and comprehensive. By a most villainous interpretation and construction virtually nullifying the act, the saloon stole a victory over the friends of temperance. What are we to think of the attorney who gave the famous construction, the secretary of war who approved the attorney's action, and the chief servant of the nation whose silence gives joy to the saloon interests of the nation? When all these rogues appear at the final great high court of the universe, the tramp's position will be envied by all the others.

I do not know who wrote the above, but I judge it was the editor, and it seemed to me as if it put the state of affairs into a nutshell better than I have ever heard it presented before. The paper does not seem to be a political one in any sense of the word. It has, however, a good deal to say about the W. C. T. U. work in various places. Is it possible my dream was providential in order to point out to me the indifferent and easy don't-care way in which almost the whole world is treating this matter of intemperance? *The Open Door* has got it exactly. Our various political parties, with the exception of the Prohibition party, seem to have rather decided the fire will not do very much harm, or it will be a long while before it gets to us, or else it has got to going already to such an extent we could not put it out if we tried *ever* so hard. The saloon element, the beer-brewers, and the liquor-dealers are too powerful for us—they have got too much money. It is not *best* to oppose them *too much*, any way—it would just make lots of trouble, and things are going on pretty well as they are. It is only a few crazy fanatics who think the flames will spread and destroy every industry and all who have any thing to do with it. For weeks and months back I have been wondering whether the whole world was wrong, or that it was only my little self who was wrong. Just now I do not think I fear so much the drink habit as I do this modern fashion of ignoring law or coolly trampling law under foot when it runs up against temperance measures. I do not think that anybody pretends that the anti-canteen law was not perfectly understood when we fought for such a law. Our enemies understood it only too well, and I think it is just as well understood now, among all classes, that there has been a deliberate and concerted plan to defeat us by breaking the law after we have secured it. The most astonishing thing to me is that our President stands with all the world just as the man and boys did in my dream, and concludes it is best not to say any thing nor do any thing. The *Sunday School Times* in its last issue says President McKinley does not and will not travel on Sunday. May God be praised for this; but why does not the same devotion to God's law and the laws of our land prompt him in like manner to declare he will not sit still in silence and see the temperance people of our land wronged and humbugged as they have been during the year just past?

The principal figure or actor in the dream I have described was the man who came in the guise of a brother Christian. Permit me to say the dream had overdrawn things rather, for I never met a book agent (or any other kind of agent) quite as bad as the fellow I have pictured. It is true, I have several times had men come to my home saying they had read my writings and had long wanted to see me and take me by the hand; and before they got through, or after I had insisted they must come down to business, they would pull out a book that had been concealed somewhere, and when I promptly refused to purchase or even look at the book they have sometimes tried (in vain, of course) to make me a present of it so my name might head the list while they went around town. If I have been in times past rude to some excellent people, especially before I really knew who they were, I hope they will accept the above explanation and excuse me. In fact, I would have it that our good friend Dr. Miller had something to sell the first time I met him, years ago. Well, now to the point of our story.

If some enemies, bent on ruining our business, had picked out a man who said he could get rid of *me*, by getting me into a quarrel, even while my property was burning, it might have explained matters. The saddest part of it is, he *did* succeed in getting me so angry that I for a moment forgot the burning lumber-piles. I do not know but that, in the heat of passion, I might have preferred to *lose* property rather than forego the gratification of giving him a pounding. You say, "Oh! that was a dream." Well, my friends, it was not *all* a dream. As I think it over, memory suggests places here and there, scattered through my past life where I neglected most serious and important duties just to stop and *quarrel* with somebody. Yes, and these fellows under the tutorship of Satan have managed to get valuable space in our journal occupied with matter that was of no value to anybody. If the story does not teach *you* a wholesome lesson it certainly does teach *me* one. May God forgive me for having been drawn so many times out of the straight and narrow path by some person like the one I have pictured in my dream; and as old age pushes along in its relentless march, may I have grace and wisdom from on high; in short, may I have of that Holy Spirit that will enable me to stand cool and steady, doing my duty before God, swerving neither to the right nor to the left, no matter how many subtile wiles may cross my path in Satan's various disguises, to lead me to waste time with straws and soap-bubbles, instead of giving my strength and reason to the work that needs to be done.

At first this picture I have been alluding to looks like an extreme one; but, dear friends, only a few months ago our Anti-saloon League was just about achieving a grand victory over the liquor-men. The latter had resorted to every hook and crook, but were driven into a corner. Finally they drummed up an infamous story that had not a particle of truth in it, and got the officers of the law to lend their aid, and arrest a minister of the gospel who was making it hot for them. Of course, he proved his entire innocence, and got clear; but they succeeded in preventing him from making his appearance at just the time he was needed most. Has any thing been done about it? Nothing, so far as I can learn. It was an easy matter to prove the whole thing a sham, and that it was just got up to evade law and nothing else; but it is so much the fashion to evade, avoid, and *humbug* when prosecuting liquor-dealers that nobody pays any attention to it. The whole world is a good deal like the crowd in my dream.

As a matter of course, when we have the example before us of law-breaking in one direction it is an easy matter to ignore and defy the law in other ways. Yesterday's daily, Dec. 7, tells of another negro, in Kentucky, who was burned at the stake instead of being promptly executed by law, as he would have been without a question. After torturing him in every way humanity could suggest, for over three hours, they left his charred remains; and the *children*, boys and girls, gathered sticks, grass, and whatever they could get hold of to continue the burning. What do you think of such an example for the rising generation? The officers of the law tried to protect him, but there were literally *thousands*, women as well as men, who threatened the lives of the officers if they did not hand over the prisoner. I understand the governor of the State is going to call for an investigation, and arrest the leaders; but there are so many of them, and they are such prominent people, that folks laugh at the idea. What sort of state of affairs is this? The women defended themselves by saying they wanted to give the man such a punishment that no colored man would ever do such a thing again. This may sound very well; but what sort of justice can we expect from the voice of the mob?

Now, please pardon me for one more illustration. A few weeks ago our good friend Admiral Dewey was exalted to the skies. We had Dewey strawberries, and at Yellowstone Park they have a Dewey geyser; and it is Dewey this, that, and the other. Dewey was the hero *of the present age*, and a subscription was raised without a bit of trouble, and he was presented with a beautiful home. And by the way, friends, when you make somebody a present, to whom does the gift belong? Is it not the property of the one to whom you gave it, just as much as if he bought it outright with his own money? If you say it is not, I hope nobody will ever make me a present again as long as I live. Dewey so understood it, as a matter of course, and I think he did an *excellent thing* when he presented it to his wife; and I am astonished and pained beyond measure, to know that any true man or woman in the United States should hurt his feelings by even *suggesting* he did any thing in the least out of the way. But what does this wild element do about it? The crowd that exalted a man to the skies *one* day, found fault with him north, south, east, and west the next; and this same crowd (am I not right?) right away after, tortured a poor negro worse than any savages ever tortured a prisoner of war, instead of letting the laws of the land and the laws of God decide what was right!

I have been thinking lately of a trip to Florida during the coming winter. On account of poor health I usually travel in Pullman cars; but just now I can't bear the thought of a Pullman car. Let me describe one little scene in a dining-car, and it is a scene I see enacted over and over with variations every time I go into such a car. A finely dressed aristocratic-appearing man sat opposite me at the table. The porter no doubt recognized him as a different sort of man from myself. I do not feel at all bad about this. It is everybody's privilege to find comfort and enjoyment after his own fashion — that is, within certain limits. The porter, with many bows, brought first a dainty little bottle of some kind of strong liquor. I saw the names and the price on the bill of fare. This liquor he poured into a glass containing a bit of ice; then it was filled up with some effervescing mineral water. The porter was very skillful and dextrous in handling the cut glass and burnished silver appliances for concocting the various kinds of drinks. The man ordered very little in the way of food, but it was mostly expensive wines, brandies, and things of that sort. He finally threw out a silver dollar, and the waiter, with more bows, brought back the change — some dimes and nickels; but the great man, with a flourish of his hand, indicated to the porter that the dimes and nickels were of no consequence— that he should keep them himself. Then the porter bowed very low while he expressed his thanks; and the whole performance might have done very nicely for a tableaux at a theater. Now, I do not know where this man got his money to buy these expensive drinks, and give away the rest of the dollar because he did not need it; but I do know from what I have seen of the class of people who drink in this way, that it is quite likely this money was wrung from some poor hard-working man, or perhaps was accumulated by robbing —well, let us say *sick* people. There are laws to prevent robbing, but it is the fashion to let this class of gilt-edged gentry get off scot free if they treat the policeman — well, say about as that man treated the porter.

Now, I am not getting to be pessimistic. There are good people in this world — lots of them. When I went about to-day among my good friends, and thanked God that there is not one on our premises who would not spring in an instant, or risk his life, perhaps, to save our property, I laughed at the *absurdity* of the dream while I thanked God it was only a dream. The greater part of our American people are temperate. We can beat the robbers (standing in high places) ten to one, and *will* beat them if our laws are enforced; but if things are going to be allowed to drift in the way I have outlined, or, rather, in which that dream presented it, we are coming to ruin as in the language of our text, and there will surely be weeping and gnashing of teeth, as there *ought* to be.

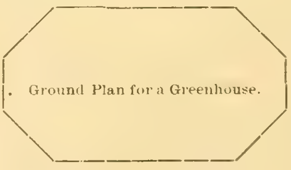
HIGH PRESSURE
GARDENING
BY
A. I. ROOT.

GARDENING UNDER GLASS.

After the years of experimenting I have had in making glass structures and in visiting greenhouses and market-gardens, I think I can make some suggestions that will be of benefit to those who are going into the business of gardening under glass. But my remarks will be mainly for those who have not very much capital, and wish to make the glass go as far as it will.

For several years I have been watching the sun very attentively during the dark months of the year — say November, December, and January. During these months we want all the benefit of whatever sunshine "comes our way." Our plants will suffer from a lack of sunlight more or less, even if we do our best. Glass is also high-priced just now, and that is one reason why we should study to make a little glass go as far as possible.

Let me remind our readers first, that a given amount of material for fencing will inclose more land if the fence is made in the shape of a circle than in any other possible way; but if our lot must be rectangular, then it will take less fencing to inclose a given area if it is a perfect square than any other shape. The longer and narrower you make the lot, the more will the fence cost to inclose a given number of acres. Now, in making a greenhouse you could inclose more space at the least expense by having it round than in any other way. But as a general rule we want the house longer from east to west. In that case it should be egg-shaped, or oval — that is, if the egg were alike at both ends. As it is somewhat more expensive, however, to make walls on a curve, I would have the ground plan oblong, and with the corners taken off, like the following, for instance:



Now, reasoning as above, the way to cover cheapest this greenhouse would be to have it a half-oblong sphere, like the diagrams shown herewith; that is, with an arrangement like 2 and 3 the same amount of glass would cover a given amount of space cheaper than in any other way. But in the first place we can not very well make a half-oblong sphere. It is

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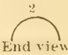
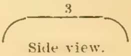


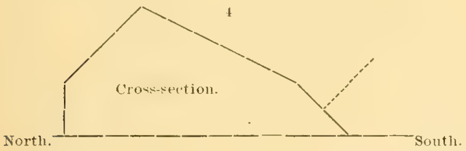
End view.

3

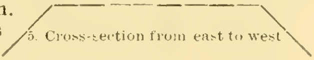


Side view.

true, millionaires have such structures for their collections of high-priced exotic plants; but for growing cabbage and tomato plants, or even roses and chrysanthemums, we do not care to go into any thing that costs so much money; and even if we could afford it there are reasons why it is not what is wanted. First, we want to have the sun in the middle of the day send its rays through the glass at right angles as nearly as possible. Secondly, we want to have the morning and evening sun also send its rays through the east and west ends of the greenhouse, in a like manner, at as nearly right angles as possible. This being true, Fig. 2 should be flattened on the south side. Accordingly, we make our greenhouse so that a cross-section through the middle would be more like Fig. 4.



You will notice the longest glass roof is on the south side; and this is on such a slant that the sun during the greater part of the fall and winter months will shine nearly straight through it — in December, perhaps exactly straight through tke slope on the extreme southern side. I have indicated by the dotted line about the direction of the sun's rays toward noon; and experience has backed up my theory, for the bed right near this sash is the best one in the whole greenhouse. There are two reasons for this. The sun, in the winter time, shines straight through it, as I have been saying, and, besides that, the glass is quite near the surface of the bed. Well, such houses are in common use; but I have never seen one except my own where the east and west ends of the house were also arranged to let the evening and morning sun shine through the glass at right angles. Fig. 5 will help to make this plain.



Now, there is a very good reason why these slopes at the east and west ends of the house should *not* be squarely north and south; for during the dark months the sun never rises exactly in the east nor sets exactly in the west. What shall we do to enable the morning rays to come more nearly at right angles, and the evening rays in the same way? Why, we must twist the glass sides at the east and west ends so as to have them face the sun in the southeast and southwest. The easiest way to do this is to place the whole structure on a piece of ground that slopes gently to the south.

Now, there is still another advantage with such an arrangement. It is down so close to the ground it is not liable to be injured by high winds. In fact, the winds, from whatever direction they blow, strike the glass at such an acute angle they shoot up and over it without doing any damage, and without chilling the contents as they would were they to strike an upright wall of glass. I am inclined to think that greenhouse men have been slow to realize the great advantage of such an arrangement.

Continued next issue.

MORE ABOUT FRIEND MARCH'S "BIG SPRING."

Friend A. I. Root:—If you will remember, that ditch was about 8 feet deep where we struck that fine stream of water that came boiling up from below. Well, after studying the matter over for a year I came to the conclusion that, could we get down to where that "boil" came from, we could get more water. So, hiring a gang of men, we started fifty feet down the hill and ran in nearly level. We struck four feet of quicksand, and under the sand a hard clay bottom. We followed this clay bottom up until our ditch was, at the head, 19½ feet deep. This ditch has drained the whole hill, all springs on the north side have dried up, and the water all comes *our* way, which gives us a stream of 29,800 gallons [nearly 1000 barrels.—A. I. R.] per day; and the cost of digging, planking, and covering up, was not quite $100. With this stream of water we can more than double our crops of all kinds.

Fidalgo, Wash., Oct. 28. H. A. MARCH.

TEN PER CENT A WEEK FOR THE USE OF MONEY.

I suppose most of you know something about the Franklin Syndicate that has just gone to the wall. They offered to pay depositors ten per cent a week for the use of their money; and to carry on their swindle they did pay ten per cent a week. Then they got their patrons to advertise for them in order to get more customers. This was a very easy thing as long as people would keep bringing their money with which to pay the ten per cent a week to those who had previously given them money. Of course, there were those who had sense enough to inquire why they did not go to the banks and get money at *six* per cent *a year* instead of soliciting loans in little dribs from poor people here and there and everywhere. Their explanation for this crazy way of doing business was, I am told, that they wanted to help (?) the poor laboring classes. Now, my friends, when you see a man anywhere throwing out dimes and quarters, and advertising far and wide that he does it to help the *poor*, set him down as a thief and a robber, and keep out of his clutches. It is only gambling under a new guise. Many of the victims admitted they *knew* the thing was a humbug; but if it held out ten weeks they would get their money all back that they had paid in, even if they never got the principal at all. These people *admitted* they were guilty of gambling. It seems hard to believe that that Franklin Syndicate robbed poor people (very likely sick people too), to the extent of millions. Since the news has gone out of their success, other thieves and robbers are starting modifications of the same plan.

Some time ago a young friend told me he had found a place where he could get 14 per cent a year and no mistake. I told him no sane man could or would pay 14 per cent a year when he could get plenty of money fo less than half that much unless he were shaky or risky, and advised him to have nothing for do with it. I need not tell you how it turned out. Well, since these fellows have gotten away with such an immense amount of money, this thing will probably be tried with no end of variations. Now, mind you, these philanthropic fellows who claim they are anxious to help the laboring people have no conscience whatever, and have no scruples at all in taking the *last copper* a poor woman has earned by going out doing washing.

"GARDENING FOR PLEASURE."

The greenhouse I have been talking to you about on another page, and which will be presented in our next issue, is now occupied, or a great part of it, with flowers instead of vegetable plants. Instead of raising stuff to sell, I am planning to grow plants this winter with which to decorate our grounds around the factories. Just now I am greatly interested in ornamental colei. I have not yet become sufficiently well acquainted with the plant to succeed with it as I should like. If any of our readers who are experts with the coleus can give us some hints, or even send me a price list of new and choice plants, it will just now strike me where I am greatly interested. I have already a Bermuda melon-tree nearly a yard high, an azalea, an orange-tree with seven oranges on it; a lot of geraniums (I make these grow just grand), an umbrella-tree, an abutilon, quite a lot of palms, etc.

SPECIAL NOTICES BY BUSINESS MANAGER

CHOICE HONEY, COMB AND EXTRACTED.

Of the car of honey received from Utah we have sold nearly two-thirds of the comb and perhaps one-fourth of the extracted so far. We are negotiating with some parties for comb, and may close out the rest of it very soon. If in need of any, write before it is all gone. Price 16 cts. per lb. in 5-case lots or over; extracted, 10 cts. in case lots of 110 to 120 lbs. per case. Samples of extracted mailed on application.

CARLOAD SHIPMENTS.

We have already begun to receive orders for supplies for next season quite freely, from jobbers and wholesale dealers, and are now shipping out one or more cars each week. We have loaded seven cars of goods for export since the last week of October, counting two we are loading as we go to press, and have orders entered for several more, besides four cars for shipment west this month.

SUNDAY SCHOOL TIMES.

Those of our readers who desire the *Sunday School Times* can have it clubbed with GLEANINGS for one year at $1.50 for the two. If you have already subscribed for GLEANINGS under some other offer you may send 75 cents alone for the *Times*. The year begins with Dec. 15, 1899, and ends middle of December, 1900.

RETAIL CATALOGS.

We are pushing the work on the revision of our catalog as fast as possible, but are not likely to have any completed till late in January. You need not wait for a new catalog for prices, as those which are changed from old edition are printed in our Nov. 15th issue, and we will print within a few days a 16-page illustrated and priced advance catalog, without descriptive matter, for use until the complete catalog is ready.

SECOND-HAND FOUNDATION-MILLS.

We have at this writing the following second-hand foundation mills which we offer at the following prices:

No. 1858. One 6-inch Root mill. This will make fair thin or extra thin; is in good order, but has several cells slightly damaged. Price $12.00.

No. 1949. One ten-inch Root mill with hexagonal cell and 2½-inch rolls. This has been used in our wax-room, and is in first-class condition for thin super. A new mill of this style is worth $30.00. Will furnish this one for $20.00.

No. 05. Six-inch mill with two-inch roll, and makes fine foundation. Price $12.00.

No. 06. Six-inch mill with 2½-inch roll. This has been used only a few months, and will make good foundation. Price $15.00.

No. 07. Six-inch mill with 2½-inch roll. This was made for thin super. It has seen considerable use, but for a general-purpose mill it will do very well, as it would make good light brood. Price $12.00.

No. 09. Ten-inch round cell with two-inch roll; in fair order. Price $18.00.

Send for samples of the mills you are interested in, provided you intend to purchase, and state which ones you wish to see samples of, and we will forward them promptly.

CONVENTION NOTICES.

The Northeastern Ohio and Northwestern Pennsylvania Bee-keepers' Association will hold their nineteenth annual convention at Andover, Ohio, Jan. 17 and 18, 1900, at Chapman Hall.

Franklin, Pa. ED JOLLEY, Sec.

The 34th semi-annual meeting of the Seneca Co. Bee-keepers' Association will be held in the K. O. T. M. Hall, Romulus, N. Y., on Tuesday, Dec. 19, 1899, at 10 A.M. C. B. HOWARD, Sec.

Romulus, N. Y.

A bee-keepers' institute under the auspices of the Bureau of Farmers' Institutes will be held in connection with the meeting of the Cayuga Co. Bee-keepers' Society at the Business Men's Association Rooms, Auburn, N. Y., Dec. 21, 1899. Sessions at 10 A. M., 1:30 P. M., and 7:20 P. M. The afternoon and evening sessions will be addressed by Prof. Frank Benton, Assistant Entomologist, U. S. Department of Agriculture. All interested are invited. J. W. PIERSON, Sec.

Advertiser's Department of Short Write-ups.

Little—But a Great Hatcher.

Hundreds of poultry-raisers on a small scale have long wished for a small, inexpensive, yet practical incubator. These will hail with delight the introduction of the "Wooden Hen."

This little hatcher does just as good work as the highest priced incubators. It is heated by hot water, and has the latest and most improved automatic attachments for regulating heat, moisture, and ventilation. It is made in the most substantial manner from thoroughly kiln-dried lumber, is handsomely finished, and has a capacity for fifty eggs. The extremely low price brings it within the reach of all, enabling any one to raise broilers for market, or for his own table, when prices are highest. An interesting and valuable little book about the "Wooden Hen" may be obtained free of the manufacturer, Mr. Geo. H. Stahl, Quincy, Ill., by mentioning this paper.

Since we began to offer poultry-journals in our clubbing list (see page 949) we have been interested to notice a good many of our readers are poultry-keepers as well as bee-keepers, and it seems as though success in this as well as in bee-keeping depends upon careful and economical management. One of the means for this which has come more and more to be depended on is the using of scraps of meat and bone, particularly fresh bones; and for getting into available shape, I believe there is nothing better than the bone-cutters offered by F. W. Mann & Co., Milford, Mass., whose ad appears on page 949. We quote the following, from a well-known poultry-man: "Fresh-cut bone as an egg food is no longer an experiment. *We know* it is the best thing on earth to make hens lay and chick grow. It will pay you to invest in a bone-cutter, if you have not one already." If you have not already written to F. W. Mann & Co. for their catalog, better do so at once, as it contains lots of valuable information, and when doing so don't forget to mention GLEANINGS IN BEE CULTURE.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., = = Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
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DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making this request when ordering.

RECEIPTS FOR MONEY. We send no receipt for subscription money. The change of the date on the little label shows you that the money has been duly received and credited. During December and January it sometimes takes us three or four weeks before the date is changed.

RATES OF ADVERTISING. These will be furnished on application.

Trial Subscriptions.

3 Months, 15c; 6 Months, 25c.

We offer GLEANINGS IN BEE CULTURE to new subscribers three months for 15c, or 6 months for 25c. Renewals not accepted at these rates.

Clubbing Rates.

As an inducement for our subscribers to renew before the expiration of their present subscription, which saves us considerable time, we offer the following rates for Gleanings one year and a year's subscription to any of the following papers at prices mentioned:

For One Dollar Only.

Gleanings and your choice of the following:
American Agriculturist, with Almanac,
Orange Judd Farmer, with Almanac,
N. E. Homestead, with Almanac,
Northwestern Agriculturist,
American Poultry Journal,
Reliable Poultry Journal,
Agricultural Epitomist,
Farm and Fireside,
Poultry Monthly,
Poultry Keeper.
Farm Journal,
Farm Poultry.

For One Dollar and Ten Cents.

Gleanings and your choice of the following:
Practical Farmer,
Michigan Farmer,
Prairie Farmer,
Ohio Farmer.

For $1.25.—Gleanings and Rural New-Yorker.
For $1.30.—Gleanings and National Stockman.
For $1.50.—Gleanings and Cosmopolitan or McClure's Magazine or American Garden.
For $2.00.—Gleanings and Country Gentleman.
For $2.50.—Gleanings and Review of Reviews.
For $2.00.—Gleanings and Pacific Rural Press.
For $1.10.—Gleanings and Kansas Farmer.

These rates good also for new subscribers.

HOW OFTEN HAVE YOU BEEN DISAPPOINTED

after buying a nice handkerchief, and taking it home, to find it all cotton, non-absorbent, and just a useless ornament?

So few store-keepers realize the necessity of a linen handkerchief, and because the cotton ones are cheaper to buy, they buy them instead of linen.

Our specialty is linen handkerchiefs—pretty, absorbent, daintily embroidered, hemstitched to prevent fraying — an entirely satisfactory article.

We especially advertise for Christmas the following, which we consider the most popular quality we have ever imported.

Our imported, Belfast Linen, Embroidered, Hemstitched, Ladies' Handkerchief, very sheer, and equal to most 25 ct. ones. We will send you three (3) for 50 cts., by mail, postpaid.

Here is a handkerchief for a gentleman. We have an All-linen, Hemstitched, Laundried, Large-sized Handkerchief. This is an extra good value, and not to disappoint the gentlemen; will sell at same price—(3) three for 50 cts. by mail postpaid.

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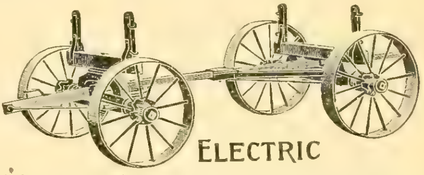
References.—The A. I. Root Co., and Medina County National Bank.

In writing, mention Gleanings.

Farm Wagon Economy.

The economy of this proposition is not all found in the very reasonable price of the wagon itself, but in the great amount of labor it will save, and its great durability. The Electric Wheel Co., who make this Electric Handy Wagon and the now famous Electric Wheels, have solved the problem of a successful and durable low-down wagon at a reasonable price.



This wagon is composed of the best material throughout—white hickory axles, steel wheels, steel hounds, etc Guaranteed to carry 4000 pounds. These Electric Steel Wheels are made to fit any wagon, and make practically a new wagon out of the old one. They can be had in any height desired and any width of tire up to 8 inches. With an extra set of these wheels a farmer can interchange them with his regular wheels and have a high or low-down wagon at will. Write for catalog of the full "Electric Line" to Electric Wheel Co., Box 95, Quincy, Illinois. *Mention Gleanings.*

An Opportunity to Double Receipts.

Rochester stock is ioo well known to require comment. We want one bee-keeper in every county to sell our nursery prodncts. Liberal pay. H. C. Ahlers, a West Bend, Wis. bee-keeper, received $81.00 for Nov. Write immediately for further particulars.

First National Nurseries, Rochester, N. Y.

Some Correspondents

MISS ADA L. PICKARD,
Richland Center, Wis.

HERBERT CLUTE,
Greenwood, Wis.

That will contribute to the Review for 1900 are pictured on this page. For some time there has been complaint that the Review devoted too much space to the subject of comb-honey production, to the neglect of extracted honey. This defect is to be remedied in 1900. "Ladies first," is a good motto, and the January Review will probably contain an article from Miss Ada L. Pickard, of Richland Center, Wisconsin. Ever since she was a little girl she has worked in the apiary with her mother; and, in 1898, she managed an out-apiary of 100 colonies; securing 16,000 pounds of extracted honey as the result of her labor. In my Wisconsin trip last summer I found her in an out-apiary fifteen miles from home. In the January Review she will describe her hives, implements, methods, etc., and I will give a frontispiece showing her out-apiary with its background of wooded hills, and a little brook in the foregronnd.

Next on the list is Mr. Herbert Clute, of Greenwood, Wisconsin, who was brought up in the bee business by that old veteran, Frank McNay; and who, during the five years that he has been in business for himself, has produced about 75,000 pounds of extracted honey, building up a nice apiary, honey-house, and wintering-cellar; all of which he will describe, and I will illustrate, in an early issue of the Review.

Harry Lathrop, of Browntown, Wisconsin, is far from being a stranger to the apicultural world, having been in the business about eighteen years. During this time he has built up and managed, by means of some help, two apiaries, while being station-agent for a railroad, and written some most excellent and practical articles for the journals. In the Review he will tell how he produces extracted honey with eight-frame Langstroth hives; and I will give a picture of his apiary—the neatest that I saw in Wisconsin.

Few men have had more experience in the production of extracted honey than has N. E. France, of Platteville, Wisconsin. I have been figuring it up, and, as nearly as I can make it out, he has, in the past twenty years, produced at least 300,000 pounds of extracted honey. When I was at his place I was particularly struck by his practical, systematic, business-like methods; and he has promised to tell the readers of the Review about these methods before the opening of another season; and I have about half a dozen most excellent photographs with which to illustrate his articles.

HARRY LATHROP,
Browntown, Wis.

N. E. FRANCE,
Platteville, Wis.

One dollar will get the Review for 1900—and twelve back numbers will be sent free.

W. Z. Hutchinson, Flint, Mich.

Do You Want to Make More Money on Your Farm?

Of course you do, and the best way to do it is to find out how others who are more successful do it by subscribing for

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OF PHILADELPHIA, PA.

The most thoroughly up-to-date and practical agricultural weekly published. It leads the agricultural thought of the country. **It is the only paper for which T. B. Terry writes,** and is the only farm paper published whose contents are directly applicable in an intensely practical manner to the every-day work on the farm. Its editors comprise the leading agricultural writers of the country

Its Unique Special Departments: Short Cuts; Mistakes, Failures, and Successes; Experience Pool; Farm Implement Annex and Postal Card Correspondence, all supported by contributions from its subscribers, keep it in direct touch with its readers every week in the year. In addition, it has departments ably edited by the acknowledged experts in their various lines, devoted to the following subjects: Garden, Stock and Dairy, Horticulture, and Home Circle. Complete and reliable market reports every week. In fact, it contains every thing that goes to make it the best, brightest, and most practical agricultural paper published. **Subscription price, $1.00 per year.** Sample copies free for the asking.

THE PRACTICAL FARMER'S SUPPLY-CATALOG contains hundreds of useful articles for the home and on the farm, and at prices that will astonish you. Send for a copy. The price is a postal card addressed to The Farmer Co., Philadelphia, Pa.

Special Offer. By a special arrangement with the publishers of THE PRACTICAL FARMER we are enabled to offer both it and GLEANINGS until January 1, 1901, for the small sum of $1.10. Address all orders to GLEANINGS.

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A business bargain for the business farmer! The Ohio Farmer stands at the head of agricultural journals in America; costs more to publish, and gives more to its readers than any other paper of its kind. It is a FARMER'S paper—practical, reliable, and entertaining. Twenty pages weekly, with liberal illustrations, and complete market reports from all the leading market centers. Ten different departments. It will pay you in dollars and cents to read it a year. Sample copies free.

The Ohio Farmer, Cleveland, Ohio.

Root's Goods in Kansas.

Carl F. Buck, Augusta, Butler County, Kansas.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED workers. BREEDING QUEENS always on hand. Price $2 50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, $1 00 each; 6 for $5.00. Untested, 75c each; 6 for $4. Queens ready in season.

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For Sale. Apiary and poultry-ranch one mile from the village of Los Alamos, Santa Barbara Co., Calif., containing 28 acres; 800 fruit-trees and vines on the place; 100 hens and turkeys, 125 stands of bees, which produced 120 lbs. of extracted honey this season per colony; but one honey failure in 23 years. For further particulars

— ADDRESS —

Joel Hilton, Los Alamos, Santa Barbara Co., Cal.

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Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail, postpaid on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the book-seller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. We very much desire that those who favor us with their patronage shall not be disappointed and therefore we are going to try to prevent it by mentioning all the faults, so far as we can, that the purchaser may know what he is getting. In the following list, books that we approve we have marked with a *; those we especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.]		[Price without postage.
8	Bible, good print, neatly bound	20
10	Bunyan's Pilgrim's Progress**	50
20	Illustrated Pilgrim's Progress**	75

This is a large book of 425 pages, and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25 cents more.

6	First Steps for Little Feet	50

By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound and fully illustrated.

	Christian's Secret of a Happy Life,** 50c; cloth	1 00
3	John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*	10
1	Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper	5
2	Same, board covers	20
5	Same, words and music, small type, board cov.	45
10	Same, words and music, board covers	75
3	New Testament in pretty flexible covers	05
5	New Testament, new version, paper covers	10
5	Robinson Crusoe, paper cover	10
4	Stepping Heavenward**	18
15	Story of the Bible**	1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

	"The Life of Trust," by Geo. Muller**	1 25
5	Tobacco Manual**	45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy who reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

15	A B C of Bee Culture, cloth	1 10
	Advanced Bee Culture, by W. Z. Hutchinson	50
3	Amateur Bee-keeper, by J. W. Rouse	22
14	Bees and Bee-keeping, by Frank Cheshire, England, Vol. I., §	2 36
21	Same, Vol. II., §	2 79
	Same, Vols. I. and II., postpaid	5 25
10	Bees and Honey, by T. G. Newman	90
10	Cook's New Manual, cloth	1 15
5	Doolittle on Queen-rearing	95
2	Dzierzon Theory	10
3	Foul Brood; Its Natural History and Rational Treatment	22
1	Honey as Food and Medicine	05
15	Langstroth Revised, by Chas. Dadant & Son	1 10
15	Quinby's New Bee-keeping	1 40
	Thirty Years Among the Bees, by H Alley	50
	Bee-keeping for Profit, by Dr. G. L. Tinker	25
5	The Honey-bee, by Thos. William Cowan	95
	British Bee-keeper's Guide-book, by Thomas William Cowan, England §	40
3	Merrybanks and His Neighbor, by A. I. Root	15
4	Winter Problem in Bee-keeping, by Pierce	46
	Bienenzucht und Honiggewinnung	50

Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.

MISCELLANEOUS HAND-BOOKS.

5	An Egg farm, Stoddard**	40
5	A B C of Carp Culture, by Geo. Finley	25
5	A B C of Strawberry Culture,** by T. B. Terry	35

Probably the leading book of the world on strawberries.

3	A B C of Potato Culture, Terry**	35

This is T. B. Terry's first and most masterly work.

	Barn Plans and Out-buildings*	1 50
	Canary birds, paper	50
2	Celery for Profit, by T. Greiner**	25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

15	Draining for Profit and Health, Warring	1 35
10	Fuller's Grape Culturist**	1 15
8	Domestic Economy, by I. H. Mayer, M. D.**	30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10	Farming for Boys*	1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

	Farming with Green Manures, postpaid	90
7	Farm, Gardening, and Seed-growing**	90
	Fungi and Fungicides, paper, 50c; cloth	1 00
12	Gardening for Pleasure, Henderson*	1 35
12	Gardening for Profit**	1 35
8	Gardening for Young and Old, Harris**	1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3	Grasses and Clovers, with Notes on Forage Plants	20

This is by Henry A. Dreer, author of the book, "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10	Greenhouse construction, by Prof. Taft**	1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

15	How to Make the Garden Pay**	1 35
5	Garden and Farm Topics, Henderson**	60
	Gray's School and Field Book of Botany	1 80
5	Gregory on Cabbages, paper*	20
5	Gregory on Squashes, paper*	20
5	Gregory on Onions, paper*	20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

	Handbook for Lumbermen	05
10	Household Conveniences	1 40
2	How to Propagate and Grow Fruit, Green*	15
10	How to Get Well and Keep Well	90

An exposition of the Salisbury system of curing disease by the "lean-meat diet."

2	Injurious Insects, Cook	10
10	Irrigation for the Farm, Garden, and Orchard*	1 10

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

7	Market-gardening and Farm Notes	75
10	Success in Market-Gardening*	90

This is by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drouth threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

3	Maple Sugar and the Sugar-bush**	32
4	Peabody's Webster's Dictionary	10

Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers 30
6 | The same in cloth covers 65
| Nut Culturist, postpaid 1 50
3 | Onions for Profit** 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and interest that characterizes its author, T. Greiner. Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

| Our Farming, by T. B. Terry** 1 50

In which he tells "how we have made a run-down farm bring both profit and pleasure."

This is a large book, 6x9 inches, 367 pages, quite fully illustrated. It is Terry's first large book; and while it touches on the topics treated in his smaller handbooks, it is sufficiently different so that no one will complain of repetition, even if he has read all of Terry's little books. I should call it the brightest and most practical book on farming, before the world at the present day. The price is $2.00 postpaid, but we have made arrangements to furnish it for only $1.50.

We are so sure it will be worth many times its cost that we are not afraid to offer to take it back if any one feels he has not got his money's worth after he has read it. If ordered by express or freight with other goods, 10c less.

1 | Poultry for Pleasure and Profit.** 10
8 | Practical Floriculture, Henderson.* 1 10
10 | Profits in Poultry.* 75
2 | Practical Turkey-raising 10

By Fanny Field. This is a 25-cent book which we offer for 10 cts.; postage, 2 cts.

2 | Rats: How to Rid Farms and Buildings of them, as well as other Pests of like Character.** 15
1 | Silk and the Silkworm 10
10 | Small-Fruit Culturist, Fuller 1 10
2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

10 | Talks on Manures* 1 35
7 | Ten Acres Enough 75
10 | The New Agriculture; or, the Waters Led Captive (a $1.50 book) 40
2 | Treatise on the Horse and his Diseases 10
5 | Tile Drainage, by W. I. Chamberlain 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge. The book embraces every thing connected with the subject, and was written by the author while he was engaged in the work of digging the ditches and laying the tiles HIMSELF, for he has laid literally miles of tile on his own farm in Hudson, Ohio.

3 | Tomato Culture 35
3 | Vegetables under Glass, by H. A. Dreer** 20
3 | Vegetables in the Open Air 20

This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects of the Microscope** 47
8 | What to Do and How to be Happy While doing It, by A. I. Root 42

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Horse-High Bull-Strong Pig-Tight.... FENCE!
Over 100 Styles, plain and ornamental. Build it yourself at the actual wholesale cost of the wire. Don't miss this
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Parties desiring these goods can get them of me, and **save freight charges.** Bees, Queens, and Nucleus Colonies from the **very best strains** in America. A forty-page illustrated catalog free. Address

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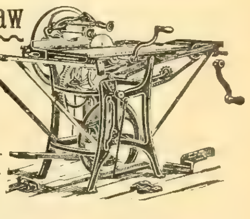

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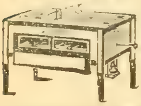

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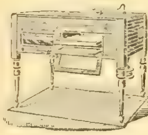

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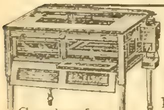

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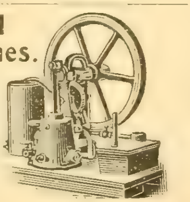

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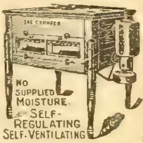

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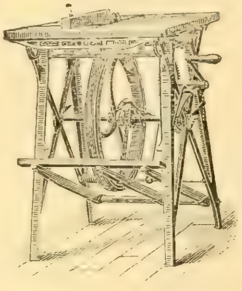

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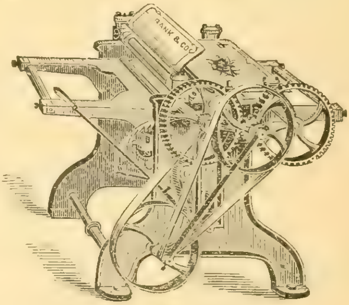

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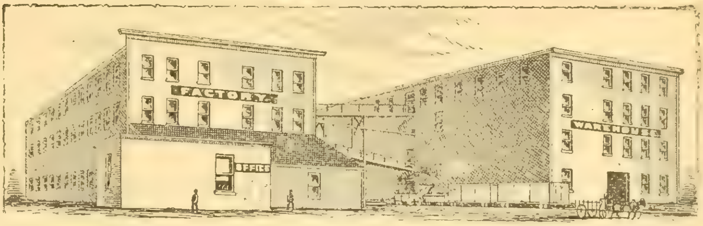

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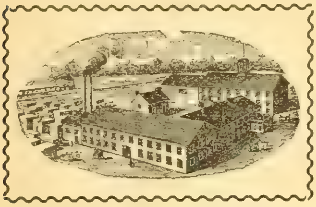

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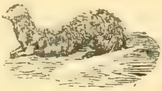

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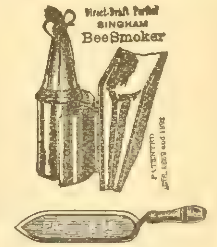

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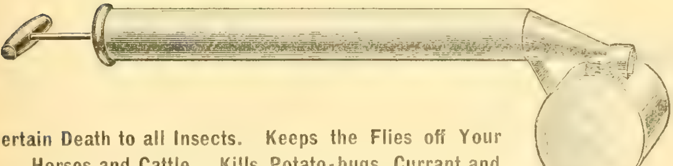

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